UNITED STATES DISTRICT COURT NORTHERN DISTRICT OF CALIFORNIA OAKLAND DIVISION

BRADLEY COOPER, Individually and On Behalf of All Others Similarly Situated,

Plaintiffs,

v.

THORATEC CORPORATION, GERHARD F. BURBACH, TAYLOR C. HARRIS, and DAVID V. SMITH.

Defendants.

Case No. 4:14-cv-00360-CW

CLASS ACTION

EXPERT REPORT OF ZACHARY NYE, PH.D.

January 15, 2018

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I. Background and Qualifications

- 1. I am a financial economist and Vice President at Stanford Consulting Group, Inc. ("SCG"). Since 1981, SCG has provided economic research and expert testimony for business litigation, and regulatory and legislative proceedings. All SCG professionals hold masters or doctoral degrees in business, economics, finance or operations research, and certain senior consultants have testified as experts in these fields. I have an A.B. in Economics from Princeton University; an M.Sc. in Finance from the London Business School; and a Ph.D. in Finance from the Paul Merage School of Business at the University of California, Irvine. I have co-authored academic research published in peer-reviewed conference proceedings, as well as working papers with finance faculty at various universities. My research areas include the market efficiency of underlying and derivative securities, volatility forecasting, risk management, financial econometrics, valuation and corporate finance. I have previously served as an expert witness in matters involving securities litigation, as well as business and intellectual property valuation. My curriculum vitae, which includes my academic research, publications in the past ten years, and prior expert testimony in the past four years, is attached hereto as Exhibit 1.
- 2. My current hourly rate is \$675. I have received assistance from individuals at SCG, who worked under my direction; their fees charged for this project are their standard hourly rates.

 Neither my compensation nor that of any individual at SCG is contingent on the outcome of this litigation.

II. Scope of Engagement

3. I have been retained by Counsel for Plaintiffs in this matter to opine as to whether the common stock of Thoratec Corporation ("Thoratec," or the "Company") traded in an efficient market throughout the period between May 11, 2011 through August 6, 2014, inclusive, (the

"Class Period"). I also have been asked by Counsel to opine on whether damages for investors who purchased Thoratec common stock during the Class Period can be calculated using a method that is common to the Class.¹

III. Bases for Opinions

- 4. My opinions are based upon my professional knowledge and experience, my review of documents and information relevant to this matter (*see* Exhibit 2), and the analyses described in this Report and its Exhibits. Documents, data, and other information that I have relied upon as bases for my opinions are cited in this Report and its Exhibits. Such documents and information are typically relied upon by financial experts in securities class actions and by financial economists in their research.
- 5. Counsel for Plaintiffs have informed me that the record in this matter continues to be developed and that fact discovery in ongoing. To the extent they are relevant, I expect to review additional facts that may become available through discovery as well as the reports and depositions of other expert witnesses. The opinions offered in this Report are subject to refinement or revision based on continuing analysis of the documents and information listed above, as well as new or additional information that may be provided to or obtained by me in the course of this matter.

IV. Summary of Opinions

6. As I discuss below in §VI, based on my review of the available evidence in this matter and careful analysis of data specific to Thoratec relating to the efficiency factors detailed

¹ The claims in this action are set forth in the Second Amended Class Complaint, dated January 20, 2015 (the "Complaint").

throughout this Report, I conclude that the market for Thoratec common stock was efficient throughout the Class Period.

7. As discussed in §VII, it is my opinion that damages for investors who purchased Thoratec common stock during the Class Period can be calculated using a method that is common to the Class.

V. Overview of Thoratec's Business Operations

- 8. Throughout the Class Period, Thoratec developed, manufactured, and marketed proprietary medical devices for mechanical circulatory support ("MCS") in the treatment of heart failure.² The Company's product portfolio was designed to "treat the full range of clinical needs for advanced heart failure patients."³ According to the Company, it "offer[ed] the widest range of MCS devices to cover indications for use ranging from acute to long-term support."^{4, 5} The Company's "strategy to maintain and expand [its] leadership position [wa]s comprised of the following market and product development activities":
 - i. Focus on and partner with leading heart centers;

² Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 3; Thoratec SEC Form 10-K for fiscal year ending January 3, 2015, p. 3.

³ Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 3.

⁴ *Id.*, p. 7.

⁵ During the Class Period, the Company's VAD products included: Thoratec Paracorporeal Ventricular Assist Device (PVAD); Thoratec Implantable Ventricular Assist Device (IVAD); HeartMate Left Ventricular Assist System (HeartMate II); HeartMate III Left Ventricular Assist System (HeartMate III); For acute circulatory support, the Company's product line included: CentriMag Acute Circulatory System (CentriMag); and PediMag/PediVAS Acute Circulatory System for pediatric patients (PediMag/PediVAS). *See* Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 3; Thoratec SEC Form 10-K for fiscal year ending December 29, 2012, p. 3; Thoratec SEC Form 10-K for fiscal year ending December 28, 2013, p. 3; Thoratec SEC Form 10-K for fiscal year ending January 3, 2015, p. 3.

- ii. Expand the utilization of VAD [Ventricular Assist Device] therapy, in particular as a destination therapy;
- iii. Offer a broad range of products;
- iv. Develop and obtain approval for new products and new indications for our products;
- v. Increase the cost effectiveness of the therapies that employ our products; and
- vi. Increase our market presence through strategic alliances, joint ventures and acquisitions.⁶
- 9. The Company was incorporated in 1978 and headquartered in Pleasanton, California.⁷
 During the Class Period, the Company "acquired the intellectual property assets of HeartMate
 PHP from [] Levitronix Medical in 2011, DuraHeart II from Terumo Corporation in 2013, and
 Apica Cardiovascular Limited in 2014." The number of personnel employed by the Company
 at year-end 2011 and year-end 2014 was 822 and 1,048, respectively.^{9,10} The Company operated
 293 and 396 HeartMate II centers globally at year-end 2011 and year-end 2014, respectively.^{11,12}
 The Company's reported product sales, gross profit, and consolidated net income by year, during
 the Class Period, were as follows:¹³

⁶ Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 7. *See also*, Thoratec SEC Form 10-K for fiscal year ending January 3, 2015, p. 7.

 $^{^{7}}$ Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 3.

⁸ Thoratec SEC Form 10-K for fiscal year ending January 3, 2015, p. 8.

⁹ Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 15.

¹⁰ Thoratec SEC Form 10-K for fiscal year ending January 3, 2015, p. 18.

¹¹ Thoratec SEC Form 10-K for fiscal year ending December 31, 2011, p. 7.

¹² Thoratec SEC Form 10-K for fiscal year ending January 3, 2015, p. 7.

¹³ *Id.*, p. 41.

(\$000s)	2011	2012	2013	2014
Product Sales	422,713	491,654	502,821	477,560
Gross Profit	287,651	291,375	339,269	316,145
Consolidated Net Income	71,544	56,163	73,326	50,931

10. After the Class Period, on October 8, 2015, St. Jude Medical completed an acquisition of Thoratec, ¹⁴ which was first announced on July 22, 2015. ¹⁵

VI. The Market for Thoratec Common Stock Was Efficient Throughout the Class Period

11. In this case, Plaintiffs have asserted the "fraud-on-the-market" presumption of reliance for certain of their claims. The "fraud-on-the-market" theory was first addressed by the U.S. Supreme Court in *Basic, Inc. v. Levinson*:

In an open and developed securities market, the price of a company's stock is determined by the available material information regarding the company and its business.... Misleading statements will therefore defraud purchasers of stock even if the purchasers do not directly rely on the misstatements.... The causal connection between the defendants' fraud and the plaintiffs' purchase of stock in such a case is no less significant than in a case of direct reliance on misrepresentations.¹⁶

12. Since *Basic*, academic economists have debated various forms of the efficient capital market hypothesis ("ECMH"). ¹⁷ In 2014, the Supreme Court clarified that *Basic* did not

¹⁴ Business Wire, "St. Jude Medical Completes Acquisition of Thoratec," October 8, 2015.

¹⁵ Reuters, "St. Jude pumps up heart device business with \$3.4 billion buy," July 22, 2015.

¹⁶ Basic, Inc. v. Levinson, 485 U.S. 224, 241–242 (1988).

¹⁷ Generally speaking, academic economists consider there to be three forms of market efficiency: "weak" form; "semi-strong" form; and "strong" form market efficiency. *See* Elton, E., M. Gruber, S. Brown and W. Goetzmann, *Modern Portfolio Theory and Investment Analysis*, Sixth Edition, John Wiley and Sons, Inc., 2007, p. 400. In fraud-on-the-market litigation, several courts reference the semi-strong form of efficiency, which implies that market prices incorporate all publicly available information. In academic finance literature, this is referred to as "informational efficiency." This hypothesis has been empirically validated in numerous studies. *See, e.g.*, Fama, Eugene F., 1970 "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, Vol. 25, Issue 2, pp. 383–417. The ECMH also has stood up against

"endorse 'any particular theory of how quickly and completely publicly available information is reflected in market price." To the contrary, the "fraud-on-the-market" theory is based "on the fairly modest premise that 'market professionals generally consider most publicly announced material statements about companies, thereby affecting stock market prices." Under this theory, investors' reliance on any public material misrepresentations and/or omissions may be presumed for purposes of a Rule 10b-5 action since the market price of the security already reflects the effects of those misrepresentations and/or omissions.²⁰

13. While the Supreme Court in *Halliburton II* stated that a market need only be "generally efficient" to invoke the "fraud-on-the-market" presumption, it did not adopt any particular test of general market efficiency.²¹ Accordingly, I consider in this Report direct and indirect tests of efficiency that courts have commonly used in securities litigation for over 30 years. A direct empirical test of market efficiency is to examine price responsiveness to the release of new and material information about the company in question. If the security price responds quickly, the response supports a conclusion that the market for the security is efficient. As an indirect test of efficiency, one can examine whether market conditions promote efficiency.

its critics; while anomalies have occurred in financial markets, they appear to be random and do not allow for trading strategies that would create abnormal profits. *See, e.g.*, Fama, Eugene F., 1998, "Market Efficiency, Long-term Returns, and Behavioral Finance," *Journal of Financial Economics*, Vol. 49, pp. 283–306; and Malkiel, Burton G., 2003, "The Efficient Market Hypothesis and Its Critics," *Journal of Economic Perspectives*, Vol. 17, pp. 59–82.

¹⁸ Halliburton Co. v. Erica P. John Fund, Inc., 134 S. Ct. 2398, 2403 (2014) ("Halliburton II"), quoting Basic.

¹⁹ *Id.*, quoting *Basic*.

²⁰ Basic, 485 U.S. at 241–242, 244, quoting Peil v. Speiser, 806 F.2d 1154, 1160–61 (3d Cir. 1986); see also, Erica P. John Fund, Inc. v. Halliburton Co., 563 U.S. 804 (2011).

²¹ *Halliburton II*, 134 S. Ct. at 2404.

14. Consistent with *Basic* and *Halliburton II*, the oft-cited decision in *Cammer v. Bloom* considered "efficient markets" to be "markets which are so active and followed that material information disclosed by a company is expected to be reflected in the stock price." The Court in *Cammer* identified five non-exhaustive factors that may be considered in determining whether the market for a security is efficient and, therefore, whether security prices respond quickly to new relevant information. These factors include both a direct empirical test, as well as indirect indicators, of market efficiency. I understand that courts throughout the country assessing the applicability of the "fraud on the market" doctrine, including courts in the Ninth Circuit, have widely adopted these five factors in evaluating market efficiency. ^{24, 25} In concluding that the

²² Cammer v. Bloom, 711 F. Supp. 1264, 1273 n.11 (D.N.J. 1989).

²³ "The vast majority of courts have used the *Cammer* factors as 'an analytical tool rather than as a checklist.' Indeed, not even the *Cammer* court considered the fifth factor necessary, stating only that 'it would be helpful to a plaintiff seeking to allege an efficient market ..." Carpenters Pension Trust Fund of St. Louis v. Barclays PLC, 310 F.R.D. 69, 83 (S.D.N.Y. 2015). "Different contexts require courts to place greater importance on some factors than on others. No other court has adopted a per se rule that any one factor is dispositive. At the same time, courts have found market efficiency in the absence of an event study or where the event study was not definitive." Id., 310 F.R.D. at 84; See also: Waggoner v. Barclays PLC 875 F.3d 79, 97 (2d 2017) ("...we recently once again declined to adopt a particular test for market efficiency in Petrobras. See 862 F. 3d at 276. Although we also declined in Petrobras to decide 'whether plaintiffs may satisfy the *Basic* presumption without any direct evidence of price impact,' id. at 276–77, i.e., without producing evidence under Cammer 5, we nevertheless explained that the 'district court properly declined to view direct and indirect evidence as distinct requirements, opting instead for a holistic analysis based on the totality of the evidence presented,' id. at 277."); id. at n. 30 ("We note that several of our sister Circuits have concluded that Cammer 5 is not necessary but nevertheless often helpful.").

²⁴ Unger v. Amedisys Inc., 401 F.3d 316, 323 (5th Cir. 2005); Bell v. Ascendant Solutions, Inc., 422 F.3d 307, 313 n.10 (5th Cir. 2005).

²⁵ See, e.g., Baker v. SeaWorld Entertainment, Inc., 2017 WL 5885542 (S.D. Cal. 2017); Brown v. China Integrated Energy, Inc., 2015 WL 12720322 (C.D. Cal. 2015); Buttonwood Tree Value Partners, LP v. Sweeney, 2013 WL 12125980 (C.D. Cal. 2013); Hodges v. Akeena Solar, Inc., 274 F.R.D. 259 (N.D. Cal. 2011); In re Diamond Foods, Inc., 295 F.R.D. 240 (N.D. Cal. 2013); In re Juniper Networks Sec. Litig., 264 F.R.D. 584 (N.D. Cal. 2009); In re Montage Technlogy Group Secs. Litig., 2016 WL 1598666 (N.D. Cal. 2016); Petrie v. Elec. Game Card, 308 F.R.D.

market for Thoratec common stock was efficient during the Class Period, I considered the following five *Cammer* factors as applied to Thoratec common stock:²⁶

- a) whether the security trades at a large weekly volume;
- b) whether analysts follow and report on the security;
- c) whether the security has market makers and whether there is a potential for arbitrage activity;
- d) whether the company is eligible to file SEC Form S-3; and
- e) whether empirical facts show a cause-and-effect relationship between the release of new, material information about the company in question and a response in the security's price.
- 15. In addition to these five *Cammer* factors, I have considered three additional factors that have also been considered by courts in evaluating market efficiency.²⁷ These additional factors are:
 - f) the company's market capitalization;
 - g) the security's public float; and
 - h) the degree of autocorrelation present in the security's returns.
- 16. As demonstrated below in §VI.A–§VI.H, an analysis of these factors for Thoratec common stock supports my conclusion that the market for the Company's stock was informationally efficient throughout the Class Period.
- 17. Though not necessarily conclusive of market efficiency, it is worth noting that throughout the Class Period, Thoratec common stock was listed and traded on the Nasdaq Global Select

^{336 (}C.D. Cal. 2015); *Smilovits v. First Solar, Inc.*, 295 F.R.D. 423 (D. Ariz. 2013); *Todd v. STAAR Surgical Co.*, 2017 WL 821662 (C.D. Cal. 2017); and *Vinh Nguyen v. Radient Pharmaceuticals Corp.*, 287 F.R.D. 563 (C.D. Cal. 2012).

²⁶ Cammer, 711 F. Supp. at 1285–1287.

²⁷ DVI, Inc., 249 F.R.D. at 214–217; Krogman v. Sterritt, 202 F.R.D. 467, 478 (N.D. Tex. 2001).

Market, which is the highest tier of the broader Nasdaq Stock Market ("NASDAQ"), under the symbol "THOR."²⁸ The NASDAQ is an electronic stock market that displays the bid and ask quotes of market makers through a worldwide network of thousands of computer terminals. NASDAQ investors have access to real-time pricing and continuous trading. In addition, companies that are listed on the NASDAQ must meet certain financial, trading, and corporate governance criteria. The NASDAQ was the listing market for 2,881 and 2,937 public companies in May 2011 and August 2014, respectively.²⁹ The Nasdaq Global Select Market has the most stringent initial financial and liquidity listing requirements of the NASDAQ's three-market tier designations:

The Nasdaq Stock Market has three distinctive tiers: The Nasdaq Global Select Market®, The Nasdaq Global Market® and The Nasdaq Capital Market®. Applicants must satisfy certain financial, liquidity and corporate governance requirements to be approved for listing on any of these market tiers. ... [T]he initial financial and liquidity requirements for the Nasdaq Global Select Market are more stringent than those for the Nasdaq Global Market and likewise, the initial listing requirements for the Nasdaq Global Market are more stringent than those for the Nasdaq Capital Market. Corporate governance requirements are the same across all Nasdaq market tiers. 30

18. A security's listing on a national securities exchange means that financial information about the issuing company is readily available to investors, at a minimum, through the company's SEC filings, and that investors have access to the security's trading prices and volumes throughout the trading day.³¹ Rules of the U.S. National Market System ("NMS") also

²⁸ Thoratec Corporation, SEC Form 10-K for the fiscal year ended January 3, 2015, p. 3.

²⁹ NASDAQ Trader, http://www.nasdaqtrader.com/Trader.aspx?id=MonthlyMarketSummary.

 $^{^{30}}$ http://business.nasdaq.com/Docs//Nasdaq%20Initial%20Listing%20Guide_tcm5044-13919.pdf.

³¹ The Consolidated Tape Association (CTA) oversees the dissemination of real-time trade and quote information in New York Stock Exchange LLC (Network A) and BATS, NYSE Arca, NYSE MKT and other regional exchange (Network B) listed securities. Since the late 1970s, all

require that investor orders in NASDAQ-listed securities be filled at the best price that can be executed immediately, even if that price is available in a different market.³² Because listing on a national securities exchange brings together many thousands (or millions) of investors, trading prices reflect a consensus opinion as to a security's value.

19. As is the case with all Nasdaq-listed equities, Thoratec stock also traded on other national securities markets as well as Alternative Trading Systems ("ATS") during the Class Period. SEC Regulation NMS requires all trading centers in the U.S. "to establish, maintain, and enforce written policies and procedures reasonably designed to prevent the execution of trades at prices inferior to protected quotations displayed by other trading centers."³³ According to the SEC:

The NMS is premised on promoting fair competition among individual markets, while at the same time assuring that all of these markets are linked together, through facilities and rules, in a unified system that promotes interaction among the orders of buyers and sellers in a particular NMS stock. The NMS thereby incorporates two distinct types of competition – competition among individual markets and competition among individual orders – that together contribute to efficient markets. Vigorous competition among markets promotes more efficient and innovative trading services, while integrated competition among orders promotes more efficient pricing of individual stocks for all types of orders, large and small. Together, they produce markets that offer the greatest benefits for investors and listed companies.³⁴

SEC-registered exchanges and market centers that trade Network A or Network B securities send their trades and quotes to a central consolidator where the Consolidated Tape System (CTS) and Consolidated Quote System (CQS) data streams are produced and distributed worldwide. (Source: https://www.ctaplan.com/index.)

³² Bodie, Zvi, Alex Kane and Alan J. Marcus, *Investments*, McGraw-Hill/Irwin, 2008, 7th Ed., Ch. 3, pp. 73, 74.

³³ SEC Regulation NMS, Securities Exchange Act Release No. 51808 (Jun. 9, 2005), 70 FR 37496 (Jun. 29, 2005) at 37496.

³⁴ *Id.*, at 37498–9.

20. At least one authority has commented that:

[A]t a minimum, there should be a presumption—probably conditional for class determination—that certain markets are developed and efficient for virtually all the securities traded there: the New York and American Stock Exchanges, the Chicago Board Options Exchange and the NASDAQ National Market System.³⁵

In the *Cammer* decision, the court stated:

[S]ome may concur with [Defendant's] suggestion...that companies listed on national stock exchanges or companies entitled to issue new securities using SEC Form S-3 would almost by definition involve stock trading in an "open and developed" market. 36

21. The market for securities trading on the NASDAQ exchange is widely recognized as efficient.³⁷ The fact that Thoratec common stock was listed and traded on a major exchange during the Class Period supports my conclusion that the market for the stock was efficient during that period. Furthermore, my analyses of the *Cammer* factors set forth below confirm the attributes of market efficiency that the listing of Thoratec common stock on the NASDAQ exchange strongly implies.

A. Cammer Factor 1: Weekly Trading Volume

- 22. A market for a security is liquid if investors can trade a large number of shares on demand. Liquidity allows investors to buy and sell shares quickly when their assessments about the value of a company have changed, facilitating the prompt price reaction to new material information that is characteristic of an efficient market. The large weekly trading volume of Thoratec common stock during the Class Period indicates the presence of a liquid market.
- 23. According to the *Cammer* decision:

³⁵ Bromberg & Lowenfels, 4 Securities Fraud and Commodities Fraud, Section 8.6 (Aug. 1988) (quoted in *Cammer*, 711 F. Supp. at 1292).

³⁶ *Cammer*, 711 F. Supp. at 1276–1277.

³⁷ *Supra*, notes 35, 36.

[T]he existence of an actively traded market, as evidenced by a large weekly volume of stock trades, suggests there is an efficient market ... because it implies significant investor interest in the company. Such interest, in turn, implies a likelihood that many investors are executing trades on the basis of newly available or disseminated corporate information.³⁸

24. Under *Cammer*, "turnover measured by average weekly trading of 2% or more of the outstanding shares would justify a strong presumption that the market for the security is an efficient one; 1% would justify a substantial presumption."³⁹ During the Class Period, the number of Thoratec shares issued and outstanding ranged from approximately 56.3 million to 59.9 million shares. The average weekly reported trading volume for the shares, excluding weeks not entirely contained within the Class Period, was as follows: ⁴⁰

Thoratec Common Stock				
Average Weekly Trading Volume in Dollars	\$110,075,775			
Average Weekly Trading Volume in Shares	3,229,434			
Average Weekly Share Trading Volume as a % of Shares Outstanding	5.6%			

Thus, the average weekly reported trading volume for Thoratec common stock is more than twice the 2% "strong presumption" of market efficiency set out by *Cammer*.

25. I also have examined the annualized turnover ratio for Thoratec common stock.⁴¹ Based on 56.8 million shares outstanding at the end of the Class Period, the total trading volume during the Class Period implies the following annualized turnover ratio:⁴²

³⁸ *Cammer*, 711 F. Supp. at 1286.

³⁹ Cammer, 711 F. Supp. at 1293, quoting Bromberg.

⁴⁰ See Exhibit 4 for a summary of weekly trading volume and shares outstanding.

⁴¹ Annualized turnover ratio is trading volume divided by the number of shares outstanding divided by the time period in years.

⁴² See Exhibit 4.

Thoratec Common Stock			
Total Shares Traded in Class Period	550,993,888		
Annualized Share Turnover	299.5%		

- 26. By comparison, the average annualized turnover ratio for all stocks listed on the New York Stock Exchange ("NYSE") in 2011, 2012, 2013, and 2014 was: 86%, 67%, 58%, and 57%, respectively.^{43, 44} Thus, the annualized turnover ratio for Thoratec common stock was more than three times greater than the average for all stocks listed on the NYSE during the Class Period.
- 27. The high trading volume and high annualized turnover ratio observed during the Class Period support my conclusion that Thoratec common stock traded in an efficient market during that time.
- 28. The relatively high weekly trading volume and high annualized turnover ratio observed during the Class Period demonstrate an actively traded market for Thoratec common stock, showing significant investor interest in the Company and implying a likelihood that many investors executed trades on the basis of newly available or disseminated corporate information. These circumstances support my conclusion that Thoratec common stock traded in an efficient market during the Class Period.

B. Cammer Factor 2: Number of Securities Analysts

29. In demonstrating market efficiency, the *Cammer* decision states:

[I]t would be persuasive to allege a significant number of securities analysts followed and reported on a company's stock during the class period. The

⁴³ NYSE Factbook Online, http://www.nyxdata.com/nysedata/default.aspx?tabid=115; choose "Market Activity" then "NYSE Group Turnover."

⁴⁴ To my knowledge, unlike the NYSE, NASDAQ does not publish comparable share turnover data. However, given that "[a]t minimum, there should be a presumption—probably conditional for class determination—that certain markets [including the NYSE] are developed and efficient for virtually all the securities traded there," I have compared Thoratec common stock to NYSE-listed securities. (Bromberg & Lowenfels, 4 Securities Fraud and commodities Fraud, Section 8.6 (Aug. 1988), quoted in *Cammer*, 711 F. Supp at 1292.)

existence of such analysts would imply, for example, the [auditor's] reports were closely reviewed by investment professionals, who would in turn make buy/sell recommendations to client investors.[] In this way the market price of the stock would be bid up or down to reflect the financial information contained in the [auditor's] reports, as interpreted by the securities analysts.⁴⁵

- 30. Securities analysts research and report to investors on the financial condition and prospects of a covered company. Analysts are conduits to the market for information collected from management through on-site visits, conference calls accompanying key company announcements, and other contacts with senior management. Analysts can channel new information to the market rapidly through their published reports, online reporting services, and alerts given to clients and other employees of the same investment firm. Analysts thus facilitate the dissemination of new information to investors and any corresponding share price reaction.
- 31. During the Class Period, several well-known investment firms followed and published research reports on Thoratec, including, but not limited to: Barclays; Barrington Research Associates; BTIG; Canaccord Genuity; Credit Suisse; JPMorgan; Ladenburg Thalmann & Co.; Leerink Partners LLC; Madison Williams; Morgan Keegan & Company; Morningstar; Northland Securities; Oppenheimer & Co.; Piper Jaffray; Rodman & Renshaw; Summer Street Research; ThinkEquity LLC; UBS Equities; Wedbush Securities Inc.; Wells Fargo Securities; William Blair & Company; WJB Capital Group; and Wunderlich Securities.⁴⁶ Over 650 analyst reports pertaining to Thoratec were issued during the Class Period.⁴⁷ In addition, according to

⁴⁵ Cammer, 711 F. Supp. at 1286.

⁴⁶ See Exhibit 5A.

⁴⁷ Exhibit 5B lists research reports on Thoratec available from Thomson Reuters Eikon, Thomson Reuters Knowledge, and Bloomberg. These reports are only a subset of all reports pertaining to Thoratec published during the Class Period. Certain restricted databases may carry research reports pertaining to Thoratec that are not included in Exhibit 5B. Furthermore, it is my

Bloomberg, the following investment firms also followed and issued reports on Thoratec during the Class Period: AURIGA; Baird, Boenning & Scattergood; EVA Dimensions; Gabelli & Co.; GARP Research; Goldman Sachs; Lazard Capital Markets; Oscar Gruss & Son; Raymond James; Sidoti & Company; Wallachbeth Capital; and Weeden & Co.⁴⁸ Also, ABR Health, Bank of America Merrill Lynch, Eagle Asset Management, and JMP Securities participated in Thoratec's conference calls following its earnings releases during the Class Period.⁴⁹

32. Financial information pertinent to Thoratec was further disseminated to investors via media coverage, investor conferences, trade magazines, Company presentations and SEC filings during the Class Period. Specifically, articles concerning Thoratec appeared in major U.S. and international news media, including: Australian Government News; Barron's; Benzinga.com; Bloomberg; Business Wire; China Weekly News; Contify Life Science News; Contra Costa Times; CQ FD Disclosure; Device & Diagnostic Letter; Dow Jones Newswires; Electronics Newsweekly; EP Vantage; FDAnews Device Daily Bulletin; GlobeNewswire; Health & Beauty Close-Up; Hindustan Times; Investment Weekly News; Investor's Business Daily; JagNotes.com; Journal of Engineering; M2 Presswire; Manufacturing Close-Up; MarketLine; MarketResearch.com; MarketWatch; News Bites; NewsRx Medical Newsletters; NewsTrak Daily; Politics & Government Week; PR Newswire; Professional Services Close-Up; Reuters; San Jose Mercury News; Seeking Alpha; StreetInsider.com; Targeted News Service; Tenders Electronic

understanding that certain analyst firms do not make all their reports available through historical and/or public databases.

⁴⁸ Source: Bloomberg. *See* Exhibit 5C, which lists analysts' price targets and rating actions on selected event dates during the Class Period as reported by Bloomberg.

⁴⁹ See CQ FD Disclosure conference call transcripts for Thoratec during the Class Period.

Daily; The Associated Press; The Oakland Tribune; The Wall Street Journal; Theflyonthewall.com; Transplant News; US Fed News; and Wireless News.⁵⁰

- 33. In addition, Thoratec's filings with the SEC were publicly available online during the Class Period at no cost.⁵¹ Thoratec's SEC filings during the Class Period included its consolidated quarterly and year-end financial statements and Company press releases.⁵²
- 34. The coverage of Thoratec by securities analysts and the amount of public reporting on Thoratec during the Class Period indicate that Company-specific news was widely disseminated to investors, thereby facilitating the incorporation of such information into the market price of Thoratec common stock. Accordingly, this factor supports my conclusion that Thoratec common stock traded in an efficient market throughout the Class Period.

C. Cammer Factor 3: Number of Market Makers and the Potential for Arbitrage

35. The third *Cammer* factor concerns the existence of market makers and arbitrageurs who facilitate trading, enabling investors to trade in a company's stock with immediacy in reaction to the disclosure of material information. As discussed below, the high number of market makers, the lack of short-selling constraints and the fact that investors could have exploited arbitrage opportunities during the Class Period supports a finding of market efficiency.

Market Makers

36. Market makers enable investors to trade promptly upon the arrival of new relevant information, thereby facilitating the incorporation of new information into securities prices.

Thoratec common stock was listed and traded on the NASDAQ. NASDAQ market participants

⁵⁰ Sources: Dow Jones' Factiva; Bloomberg; Internet search.

⁵¹ SEC filings and forms are available for free at http://www.sec.gov/edgar.shtml.

⁵² Exhibit 6 includes a list of Thoratec's filings with the SEC during the Class Period.

are made up of market makers, order entry firms, and alternative trading systems that include electronic communication networks and unlisted trading privileges exchanges. NASDAQ allows all participants equal access to the market and to market information through a simultaneous broadcast of quotes over computer terminals to over 1.3 million users in 83 countries. Market makers are independent dealers competing for investor orders by displaying buy and sell interest in NASDAQ-listed securities. Market makers help to ensure a liquid market for a particular stock; a market in which willing buyers can readily find willing sellers, and vice versa. Market makers in a particular stock stand ready to provide stock price quotations and facilitate trading by purchasing that stock from and selling to investors. They also buy and sell shares and may increase or reduce their inventory when pricing discrepancies exist. Market makers display both buy and sell quotes in all securities in which they choose to make a market and are subject to disciplinary action if they fail to honor their quoted prices. Market efficiency can be facilitated by market maker involvement.

37. NASDAQ market maker activity in Thoratec common stock was obtained from Bloomberg. During the Class Period, the number of active market makers trading Thoratec common stock (data reported monthly from May 2011 to August 2014) was 275. In addition, many of the market makers that facilitated trading in Thoratec common stock handled a sizeable volume of shares.⁵⁴ The substantial number of market makers for Thoratec common stock supports my conclusion that the market for Thoratec common stock was efficient during the Class Period.

^{53 &}quot;About NASDAQ," http://www.nasdaq.com/about/about.pdf, pp. 44–46.

⁵⁴ See Exhibit 7 for the share volume by market maker for Thoratec common stock.

Arbitrage Activity

- 38. Related to *Cammer* Factor 3 is the existence of arbitrageurs, sophisticated investors who can act rapidly to take advantage of security pricing discrepancies. Arbitrageurs ensure that market prices reflect public information, the fundamental hallmark of market efficiency.⁵⁵ As I demonstrate below, the level of short interest, the high degree of institutional ownership and the tightness of bid/ask spreads for Thoratec common stock suggest that arbitrage activity was prevalent during the Class Period.
- 39. One way in which arbitrageurs can exploit mispricing in the market is by engaging in short-sale transactions. A short sale is a transaction in which an investor sells a stock that he or she does not own and then purchases that stock back in the future. If the price declines between the time a security is sold short and the time it is purchased, the short seller realizes a gain. Thus, short selling is an advantageous strategy if an arbitrageur expects a security's price to decline in the future. Furthermore, short sales allow arbitrageurs that currently do not own a

... the process of earning riskless profits by taking advantage of differential pricing for the same physical asset or security. As a widely applied investment tactic, arbitrage typically entails the sale of a security at a relatively high price and the simultaneous purchase of the same security (or its functional equivalent) at a relatively low price.

Arbitrage activity is a critical element of modern, efficient security markets. Because arbitrage profits are by definition riskless, all investors have an incentive to take advantage of them whenever they are discovered. Granted, some investors have greater resources and inclination to engage in arbitrage than others. However, it takes relatively few of these active investors to exploit arbitrage situations and, by their buying and selling actions, eliminate these profit opportunities. Sharpe, William F., et al., *Investments*, Prentice Hall, 1999, 6th Ed., p. 284.

⁵⁵ Arbitrage has been defined as:

⁵⁶ Berk, Jonathan and Peter DeMarzo, *Corporate Finance*, Pearson Education, Inc., 2007, 1st Ed., Ch. 11, p. 339.

security to convey their opinions to the market, thereby helping the market to achieve a consensus as to that security's fair value given all publicly available information.

40. Arbitrageurs were not constrained in their ability to short shares of Thoratec common stock. During the Class Period, the average short interest for Thoratec common stock was 4.57% of its shares outstanding, and 4.59% of its public float.^{57, 58} In comparison, NYSE-listed stocks had an average short interest equal to 3.17% of total shares outstanding during the Class Period.^{59, 60} Furthermore, economist Gene D'Avolio has summarized the market for short-selling in the United States by examining data from April 2000 to September 2001.⁶¹ D'Avolio estimates that in the second quarter of 2001, as much as one-quarter of the U.S. market capitalization was available as loan supply for short-selling and that 7% of that capacity was utilized. D'Avolio also finds that short interest was, on average, 2.3% of shares outstanding.

⁵⁷ FINRA (the Financial Industry Regulatory Authority) was created in July 2007 from the consolidation of the NASD and various regulatory functions of the NYSE. It is a non-governmental organization that regulates member brokerage firms and exchange markets, and is overseen by the SEC, the ultimate regulator of the U.S. securities industry, including FINRA.

Pursuant to FINRA Rule 4560, FINRA member firms are required to report total short positions in all customer and proprietary firm accounts in all NASDAQ, NYSE, NYSE MKT, NYSE Arca, BATS, and OTC equity securities to FINRA on a semi-monthly basis. Short position filings are made online via the Regulation Filing Applications (RFA) system at https://regfiling.finra.org. Short position reports filed by member firms include the relevant exchange/market code, issue symbol, security name, and number of common shares, preferred shares, warrants, units or ADRs short for the current reporting period as of the designated settlement date. *See* http://www.finra.org/industry/short-interest/regulation-filing-applications-instructions.

⁵⁸ See Exhibit 8B. Public float is equal to shares outstanding less insider holdings. A comparison of short interest to public float is relevant as public float represents the shares available to lend for short sales.

⁵⁹ See Exhibit 8A.

⁶⁰ To my knowledge, unlike the NYSE, NASDAQ does not publish comparable market-wide short interest data, thus I have compared Thoratec common stock to NYSE-listed securities. *Supra*, note 44.

⁶¹ D'Avolio, Gene, 2002, "The market for borrowing stock," *Journal of Financial Economics*, Vol. 66, pp. 271–306.

- 41. Institutional ownership is another indicator of arbitrage activity in so far as institutional investors, such as pension funds, mutual funds and investment banks, are generally considered to be sophisticated investors that have ready access to minute-to-minute financial news and to online bulletins from analysts. Relative to most individual investors, institutional investors have significantly greater resources with which to analyze financial information pertinent to the securities in which they invest. Institutional ownership implies that investment professionals actively review company-specific financial information and, in turn, make buy/sell recommendations to their firm and/or client investors. In this way, investors bid up or down the market price of a security to reflect all publicly available information, as interpreted by institutional investors. Moreover, because short sellers often borrow shares from institutions, a high degree of institutional ownership relative to the level of short interest indicates a lack of short-sale constraints, thereby facilitating market efficiency by enabling arbitrageurs to engage in short selling.⁶²
- 42. Institutional investors owned a large percentage of Thoratec common stock during the Class Period. According to data provided by Thomson Reuters Eikon, over 266 institutional investors held Thoratec common stock at the end of each quarter during the Class Period.⁶³ Additionally, the fact that institutional holdings were on average over 21 times the short interest

⁶² Asquith, Paul, Parag A. Pathak and Jay R. Ritter, 2005, "Short interest, institutional ownership and stock returns," *Journal of Financial Economics*, Vol. 78, pp. 243–76.

⁶³ Institutions which file Form 13F with the SEC report shares held as of the end of each calendar quarter. *See* Exhibit 9 for a summary of institutional holdings for Thoratec common stock during the Class Period.

in Thoratec common stock implies that short selling was not constrained during the Class Period.⁶⁴

43. Another indicator of the potential for arbitrage activity to correct market inefficiencies (*i.e.*, arbitrage opportunities) is the size of bid/ask spreads. Bid/ask spreads are a measure of transaction costs and low transaction costs indicate that arbitrage opportunities can be exploited readily. As shown in the following table, the bid/ask spreads on Thoratec common stock during the Class Period were smaller than those of a random sample of stocks listed on the NASDAQ Global Select Market.⁶⁵

	Thoratec Common Stock		NASDAQ Sample	
	Spread (\$)	Spread (%)	Spread (\$)	Spread (%)
Average:	\$0.02	0.05%	\$0.04	0.21%
Median:	\$0.01	0.03%	\$0.03	0.17%

44. The fact that the bid/ask spreads on Thoratec common stock were narrower than those of other stocks listed on the NASDAQ Global Select Market is evidence in support of my conclusion that the market for Thoratec common stock was efficient during the Class Period.

D. Cammer Factor 4: Eligibility to File SEC Form S-3

45. The *Cammer* court discussed the relationship between S-3 eligibility and efficiency, noting that "[t]he issue is not whether [the company] recently completed a public offering, but whether, if it did, it would enjoy the benefit of making abbreviated prospectus disclosure because

⁶⁴ The average number of shares held by institutions during the Class Period was approximately 55.8 million shares; the average short interest was approximately 2.6 million shares.

⁶⁵ The bid/ask spread analysis reported in Exhibit 10 compares the bid/ask spreads of Thoratec common stock on each day during the Class Period to those of 100 randomly selected stocks listed on the NASDAQ Global Select Market.

the SEC viewed it to be in an efficient market where documents 'on file' could be deemed to be known by the investment community."66

- 46. Form S-3 is a simplified registration form that may be used by U.S. companies that meet the following requirements:
 - a. it has been subject to the Securities Exchange Act of 1934 reporting requirements for more than one year;
 - b. it has filed all required documents in a timely manner during the prior twelve months;
 - it has not, since the last audited statements, failed to pay required dividends or sinking fund installments on preferred stock, or defaulted on debts or material leases; and
 - d. it meets certain minimum stock requirements. 67, 68

Companies eligible for filing on Form S-3 are permitted to incorporate prior filings by reference into current filings, and need not repeat such information since it is already widely available to the public.

47. It is the SEC's view that these Form S-3 eligible companies—those that disclose financial information to the SEC and issue press releases to the public—have already disseminated information to the marketplace, and, therefore, that the market operates efficiently for them.⁶⁹

⁶⁶ Cammer, 711 F. Supp. at 1284.

⁶⁷ http://www.sec.gov/about/forms/forms-3.pdf.

⁶⁸ Prior to January 28, 2008, the SEC required a minimum of \$75 million in stock be held by non-affiliates. Effective January 28, 2008, a company with a non-affiliate public float of less than \$75 million is permitted to file Form S-3 with certain restrictions. *See* Securities and Exchange Commission, 17 CFR Parts 230 and 239 [Release No. 33-8878; File No. S7-10-07], RIN 3235-AJ89, Revisions to the Eligibility Requirements for Primary, Securities Offerings on Forms S-3 and F-3.

⁶⁹ SEC Securities Act Release No. 6331 (August 18, 1981), pp. 5, 6.

Certain courts have also stated that the ability to file Form S-3 is an indicator of market efficiency:

Corporations permitted to use the S-3 form are thus presumed to be actively traded and widely followed. *See Harman*, 122 F.R.D. at 525. Therefore, a company's ability to file an S-3 Registration Statement points to market efficiency.⁷⁰

- 48. Thoratec filed multiple Forms S-3 prior to the Class Period indicating it was eligible to file Form S-3 during the Class Period.⁷¹ That Thoratec was eligible to file Form S-3 throughout the Class Period supports my conclusion that the market for its stock was efficient during the time.
 - E. Cammer Factor 5: Empirical Facts Showing a Cause-and-Effect Relationship Between Unexpected Corporate Events or Financial Releases and the Price Reaction of Thoratec Common Stock
- 49. *Cammer* Factor 5 relates to how a security reacts to new information. The *Cammer* court stated that:
 - ... one of the most convincing ways to demonstrate [market] efficiency would be to illustrate, over time, a cause and effect relationship between the company disclosures and resulting movements in stock price.⁷²
- 50. A direct test of market efficiency is to conduct what is known as an "event study" to examine whether security prices respond to new material information released to the market. Expert economists commonly use an event study in securities litigation to correlate the disclosure of new material information to security price response. Event studies comprise numerous steps, including: (i) the *a priori* definition and selection of events to study; (ii)

⁷⁰ Krogman, 202 F.R.D. at 476.

⁷¹ Thoratec filed 32 Forms S-3, S-3/A, or S-3MEF during the period April 1985 through September 2004. (Source: Edgar Pro; pro.edgar-online.com.)

⁷² Cammer, 711 F. Supp. at 1291.

identification of a study period; (iii) estimation of a regression model to remove non-company-specific effects from the security's return; (iv) testing for statistical significance; and (v) interpretation of empirical results.⁷³ Academic research acknowledges that some variation in approaches to event studies is permitted.⁷⁴

- 51. I performed a standard event study for Thoratec common stock to determine whether new material corporate events or financial releases promptly caused a measurable stock price reaction after accounting for contemporaneous market and industry effects. As set forth in Exhibit 12, my event study demonstrates a cause-and-effect relationship between new material Company disclosures and resulting movements in Thoratec's stock price during the Class Period. The regression analyses used in the event study are described in Appendix A and Exhibit 11.
- 52. To determine which events to include in my analysis, I relied on my knowledge of a large body of event study literature that has evaluated what types of information affect stock prices.

 Specifically, I examined dates on which Thoratec disclosed information related to its quarterly or

The execution of an event study is quite simple. It involves the identification of an event that causes investors to change their expectations about the value of a firm. The investigator compares a stock price movement contemporaneous with the event to the expected stock price movement if the event had not taken place. There are three basic steps in conducting an event study: (i) define the event window; (ii) calculate abnormal stock price performance around the event; and (iii) test for statistical significance of the abnormal stock price performance.

See Mitchell, Mark L. and Jeffry M. Netter, 1994, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer*, Vol. 49, pp. 557, 558.

⁷³ As described by Mitchell and Netter:

⁷⁴ However, "[w]hile there is no unique structure, the analysis can be viewed as having seven steps." Those steps are event definition, selection criteria, normal and abnormal returns, estimation procedure, testing procedure, empirical results, and interpretation and conclusion. *See* Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, pp. 150–152.

year-end financial results. Such earnings-related announcements are an objective set of events to examine, which have been shown in the academic finance literature to impact stock prices.⁷⁵ I also examined dates of corrective disclosures alleged in the Complaint.⁷⁶ Exhibit 12 describes each of my selected event dates in detail and discusses how the observed price reactions in Thoratec common stock are consistent with those expected in an efficient stock market.⁷⁷

53. Out of the 14 dates examined, nine (or 64.3%) are associated with a statistically significant Company-specific return at or above the 95% confidence level (three statistically significant positive returns, 78 and six statistically significant negative returns 79). 80 Given that my sample contains over 12 times as many statistically significant dates as should be expected from a randomly selected 14-day sample during the Class Period (at or above the 95% confidence level), my analysis confirms that Thoratec's stock price typically reacted more strongly on the event dates than on non-event dates during the Class Period. 81

⁷⁵ See, e.g., Ball, R., and P. Brown, 1968, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research*, pp. 159–78.

⁷⁶ Complaint, ¶¶128–173.

⁷⁷ For each event date, Exhibit 11 contains the associated stock price movements, both observed and net of market and industry effects, and well as indicators of statistical significance at the 90% and 95% confidence level.

⁷⁸ February 9, 2012; August 1, 2013; and October 31, 2013.

⁷⁹ November 2, 2011; August 2, 2012; May 3, 2013; November 29, 2013; May 7, 2014; and August 7, 2014.

⁸⁰ The Company-specific return on November 2, 2012 was statistically significant at the 90.5% confidence level.

⁸¹ At the 95% level of confidence, a statistically significant return is expected to occur 5% of the time. Thus, one should expect a random sample of 14 days to contain 0.7 days that are statistically significant.

- 54. Furthermore, my review of the news and analysts' reports demonstrates that the direction of the Company-specific return observed on each event date is consistent with that expected in an efficient market. Specifically, event dates on which new material *positive* Company-specific news reached the market are associated with a statistically significant *positive* return, and event dates on which new material *negative* Company-specific news reached the market are associated with a statistically significant *negative* return. For event dates that are associated with a statistically insignificant Company-specific return, 82 the Company's financial results were generally in line with market expectations and/or the information released was neutral or mixed, such that the insignificant stock price reactions are consistent with that expected in an efficient market. Indeed, my event study finds: (i) that a strong cause-and-effect relationship existed between the information disclosed on the event dates and resulting stock price movements; and (ii) that the direction of the Company-specific return on event dates is consistent with the information disclosed.
- 55. Based on the event study performed, I find that Thoratec's stock price reflected the information disclosed to the market, and promptly responded to material, unexpected news. The event study supports my conclusion that the market for Thoratec common stock was efficient throughout the Class Period.

F. Additional Factor 1: Market Capitalization

56. Courts have found that a large market capitalization (*i.e.*, the total value of a company's equity) may be an indicator of market efficiency because investors have a greater incentive to purchase the stock of more highly capitalized corporations.⁸³ I have discussed above the fact that

⁸² August 4, 2011; May 2, 2012; February 6, 2013; and February 5, 2014.

⁸³ DVI, Inc., 249 F.R.D. at 212, quoting Krogman, 202 F.R.D. at 478.

Thoratec common stock exhibited substantial institutional ownership and was widely followed by analysts. This is consistent with Thoratec's relatively high market capitalization. The market capitalization of Thoratec common stock ranged from a high of \$2.47 billion in November 2013 to a low of \$1.69 billion in November 2011.⁸⁴

57. By comparison, the median market capitalization of the roughly 2,400 companies listed on the NASDAQ was \$232.7 million at the start of the Class Period and \$297.1 million at the end of the Class Period. As of year-end 2013, Thoratec's equity market capitalization was greater than 84.4% of NASDAQ-listed stocks. According to the *DVI* court, a finding of "high market capitalization as compared to the broader survey of publicly traded companies weighs in favor of a finding of market efficiency."⁸⁵

G. Additional Factor 2: Public Float

58. Courts have held that a large public float percentage (*i.e.*, the percentage of shares outstanding held by the public rather than insiders) may be an indicator of market efficiency.⁸⁶ During the Class Period, there were between 56.3 million and 59.9 million Thoratec shares outstanding, and insiders held between 160,651 and 327,545 of these shares. Accordingly, the public float of Thoratec common stock was over 99% of total shares outstanding during the Class Period.⁸⁷

⁸⁴ See Exhibit 13.

⁸⁵ *DVI*, *Inc.*, 249 F.R.D. at 212.

⁸⁶ Unger, 401 F.3d at 323; Bell, 422 F.3d at 313 n.10; Krogman, 202 F.R.D. at 478; O'Neil v. Appel, 165 F.R.D. 479, 503 (W.D. Mich. 1996).

⁸⁷ See Exhibit 14.

59. The fact that that majority of the shares were held by the public as opposed to Company insiders throughout the Class Period supports my conclusion that Thoratec common stock traded in an efficient market during that time.

H. Additional Factor 3: Autocorrelation

60. "A security exhibits autocorrelation if the change in price of the security on a given day provides an indication of what the change in price for the security will be on the following day." Courts have found that a lack of autocorrelation in security returns may be an indicator of market efficiency since "if new information about a company is incorporated slowly into the price of a security, then the security will exhibit autocorrelation, suggesting an inefficient market." The first-order autocorrelation coefficient for Thoratec common stock returns, which measures the correlation between a given trading day's (day *t*'s) return and the return from the previous trading day (day *t*-1), was a statistically insignificant 0.03 during the Class Period. Thus, Thoratec common stock did not exhibit autocorrelation during the Class Period, suggesting it traded in an efficient market during that time.

VII. Damages for Purchasers of Thoratec Common Stock During the Class Period Can Be Calculated on a Class-Wide Basis

61. I have not, as of yet, been asked to provide an opinion on loss causation or to calculate Class-wide damages in this matter. I have been asked, however, to opine on whether damages for investors who purchased Thoratec common stock during the Class Period can be calculated on a Class-wide basis. Although damages, if any, for each individual Class member may vary,

⁸⁸ DVI, Inc., 249 F.R.D. at 213; see also In re PolyMedica Corp. Sec. Litig., 453 F. Supp. 2d 260, 276-277 (D. Mass. 2006).

⁸⁹ *DVI*, *Inc.*, 249 F.R.D. at 213.

⁹⁰ See Exhibit 15.

the method of calculating damages is common to the Class. In what follows, I set forth the general economic framework for quantifying per-share damages on a Class-wide basis.

- 62. An investor incurs damages when a security is acquired at a price that is inflated as a result of false or misleading statements or omissions, provided that a later corrective disclosure and/or materialization of concealed risk causes the price of that security to decline. Price inflation in a security can be created by material misrepresentations and/or omissions on or before the date of purchase, which remain uncorrected in whole or in part at the time of purchase. Damages may be mitigated if the security is sold before the price inflation is fully dissipated, given that the investor receives the benefit of any inflation remaining at the date of sale.
- 63. Price inflation may be measured on a Class-wide basis by analyzing the change in a security's price caused by a corrective disclosure and/or the materialization of a concealed risk. The decline in a security's price in response to such events reflects the dissipation of price inflation created by earlier misrepresentations and/or omissions. An event study can be used to isolate Company-specific price movement caused by the revelation of the alleged fraud from price movement caused by other factors. Other factors can include changes in market and industry conditions or the dissemination of material non-fraud-related, Company-specific information. After isolating the price impact of the alleged misstatements and omissions, one

can estimate the price inflation due to the alleged fraud for each day during the Class Period, and on a Class-wide basis for each member of the Class.^{91, 92}

64. Once the daily levels of price inflation have been calculated throughout the Class Period, a Class member's actual trading activity in the security can be used to mechanically calculate damages on an individual basis. For each Class member, damages incurred on a security

Performing an event study can thus help an expert to determine at least two things. First, assuming that the defendant company fraudulently concealed information, the event study shows how much money the fraud caused shareholders to lose. Identifying residual returns on days when allegedly concealed information reached the market indicates that the supposedly withheld information caused the company's stock price to change. If the release of allegedly withheld information causes a stock price decrease, shareholders who purchased the defendant company's stock after the alleged fraud but before the revelation may have paid a higher price than they would have but for the defendant's fraudulent conduct — known as an "artificial[ly] inflat[ed]" price.

Second, the event study helps the expert "calculat[e] what the price of [the defendant company's security would have been had the alleged wrongful conduct not occurred," by estimating the amount of artificial inflation in the company's stock price over time. Just as the existence of a residual return on a day when the market discovers allegedly concealed information shows that the company's stock price was artificially inflated, the size of the residual return on such a day provides evidence of the *amount* by which concealing that particular information inflated the defendant company's stock. As a result, if concealed information reached the market through multiple corrective disclosures, the sum of the residual returns associated with those disclosures provides evidence about the amount of artificial inflation in the company's stock after the fraud but before those corrections. Thus, an expert using an event study can estimate the amount of artificial inflation in the defendant company's stock price when shareholders purchased their shares, which is equivalent to estimating the difference between what those investors should have paid for the shares but-for the alleged fraud, and what they actually paid.

⁹¹ "Price impact can be shown either by an increase in price following a fraudulent public statement or a decrease in price following a revelation of the fraud." *Erica P. John Fund, Inc. v. Halliburton Co.*, 718 F.3d 423, 434 (5th Cir. 2013), *vacated and remanded on other grounds*, *Halliburton II*, 134 S. Ct. 2398 (U.S. 2014).

⁹² In re Pfizer, Inc. Sec. Litig., Case No. 14-2853-cv (2d Cir. Apr. 12, 2016), pp. 16, 17 (internal citations omitted):

acquired during the Class Period and retained through the end of the Class Period are equal to the amount of inflation at purchase. For a security acquired during the Class Period and sold later in the Class Period, damages are the price inflation at purchase minus the price inflation at sale. Given my understanding of the Supreme Court's ruling in *Dura*, ⁹³ a security purchased during the Class Period and sold before the first corrective disclosure and/or materialization of a concealed risk is ineligible for damages. Similarly, a security that is both purchased and sold between two sequential disclosures of corrective information is ineligible for damages.

65. Finally, per-share damages should also incorporate the so-called "90-day lookback" provision of the Private Securities Litigation Reform Act of 1995, which also can be applied on a Class-wide basis. This provision applies such that losses on securities purchased during the Class Period and held as of the close of the 90-day period subsequent to the Class Period (the "90-Day Lookback Period") cannot exceed the difference between the purchase price paid for the security and the average price of the security during the 90-Day Lookback Period. Losses on securities purchased during the Class Period and sold during the 90-Day Lookback Period cannot exceed the difference between the purchase price paid for the security and the rolling average price of the security during the portion of the 90-Day Lookback Period elapsed as of the date of sale. Damages incurred by purchasers of Thoratec common stock during the Class Period can be calculated on a Class-wide basis in this manner.

VIII. Conclusion

66. In summary, the market for Thoratec common stock was efficient throughout the Class Period and damages for investors who purchased Thoratec common stock during the Class Period can be calculated using a method that is common to the Class.

⁹³ Dura Pharms., Inc. v. Broudo, 544 U.S. 336 (2005) ("Dura").

67. My work in this matter is ongoing. My opinions in this Report are subject to refinement or revision based on analysis of new information which may be provided to me, including the opinions of other experts, and receipt of additional documents and data, and based on further analysis of the data and materials described herein. I understand that discovery is ongoing. Should additional relevant information be provided to me, my opinions may be supplemented at a later date.

Executed on January 15, 2018, at Redwood City, California.

Zachary Nye, Ph.D.

Appendix A: Description of Regression Analysis

- 68. For the purposes of examining market efficiency, I have conducted an event study to determine whether new, material, Company-specific information promptly caused a measurable stock price reaction after accounting for contemporaneous market and industry effects. In an effort to isolate Company-specific effects that influenced Thoratec's stock price during the Class Period, I performed a regression analysis to measure the relationship between Thoratec common stock returns and 1) changes in market-wide factors that would be expected to impact all stocks; and 2) changes in industry-wide factors that would be expected to impact stocks in the "Medical Devices" industry. By measuring how Thoratec common stock returns move in relation to an overall market index and an industry index, I can also measure how it responds to Company-specific news.
- 69. For each event prior to the first alleged corrective event, which occurred after market close on November 27, 2013, the "Control Period" used to estimate the regression equation is the calendar year immediately preceding the impact date (*i.e.*, the first trading day on which the information disclosed could have impacted the market price).^{94, 95} To be consistent with the

⁹⁴ Mitchell, Mark L. and Jeffry M. Netter, 1994, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer*, Vol. 49, pp. 545–90 at p. 568:

The market model is estimated with regression analysis. The estimation period for this market model equation typically ranges from 100 to 300 trading days preceding the event under study.

⁹⁵ MacKinlay, A. Craig, 1997, "Event Studies in Economics and Finance," *Journal of Economic Literature*, Vol. 35, pp. 13–39 at p. 15:

Given the selection of a normal performance model, the estimation window needs to be defined. The most common choice, when feasible, is using the period prior to the event window for the estimation window. For example, in an event study using daily data and the market model, the market model parameters could be estimated over the 120 days prior to the event. Generally the event period itself is

academic literature, each of my Control Periods exclude the events under study. 96, 97 Further, in order to prevent the disclosure of the alleged fraud from contaminating my normal return measure, and in turn my estimate of abnormal return volatility, the Control Period used for each event subsequent to the first alleged corrective disclosure is the calendar year immediately preceding November 29, 2013. 98, 99

70. The market index used is the S&P 500, which "includes 500 leading companies and captures approximately 80% coverage of available market capitalization." This broad-based market index is commonly used by economists as a representation of the overall market, which is

Appraisal of the event's impact requires a measure of the abnormal return. The abnormal return is the actual ex post return of the security over the event window minus the normal return of the firm over the event window. The normal return is defined as the expected return without conditioning on the event taking place.

It is typical for the estimation window and the event window not to overlap. This design provides estimators for the parameters of the normal return model which are not influenced by the event-related returns. Including the event window in the estimation of the normal model parameters could lead to the event returns having a large influence on the normal return measure. In this situation both the normal returns and the abnormal returns would reflect the impact of the event. This would be problematic since the methodology is built around the assumption that the event impact is captured by the abnormal returns.

not included in the estimation period to prevent the event from influencing the normal performance model parameter estimates.

⁹⁶ See Exhibit 12 for a list of all the events under study.

⁹⁷ See, e.g., MacKinlay, A. Craig, "Event Studies in Economics and Finance," *Journal of Economic Literature*, Vol. 35, pp. 13–39 at p. 15; and Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, p. 152.

⁹⁸ MacKinlay, A. Craig, 1997, "Event Studies in Economics and Finance," *Journal of Economic Literature*, Vol. 35, pp. 13–39 at p. 15:

⁹⁹ Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, p. 158:

¹⁰⁰ http://www.spindices.com/indices/equity/sp-500.

theoretically required by the Capital Asset Pricing Model ("CAPM"), for which famed financial economist, William Sharpe, won a Nobel Prize. 101

71. In addition to market-wide factors, my regression analysis also measures the relationship between Thoratec common stock returns and changes in industry-wide factors that would be expected to impact all stocks in Thoratec's particular industry. In constructing the industry index, I considered: (i) companies identified as industry competitors in analyst reports published during the Class Period; (ii) companies identified by the Bloomberg Industry Classification System (BICS) as operating in the "Medical Devices" industry; and (iii) companies identified as peers in Thoratec's SEC filings issued during the Class Period. In this analysis, the industry index is comprised of the constituent stocks of the Bloomberg Industries Cardiology Competitive Peers Index. To be included in the industry index, the company's stock must have pricing

The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1990, Press Release, http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1990/press.html:

An important result is that the expected return on an asset is determined by the beta coefficient on the asset, which also measures the covariance between the return on the asset and the return on the market portfolio. ... The CAPM is considered the backbone of modern price theory for financial markets. It is also widely used in empirical analysis, so that the abundance of financial statistical data can be utilized systematically and efficiently. ... Along with Markowitz' portfolio model, the CAPM has also become the framework in textbooks on financial economics throughout the world.

information available during the Class Period and must have been traded on a U.S. exchange. 102, 103

72. My estimated regression equations for the stock are provided in Exhibit 11B. As indicated by the *t*-statistics corresponding to each index, Thoratec common stock returns exhibited a statistically significant association with both market index returns and residual industry index returns during the Class Period. Exhibit 11A shows Thoratec's expected and residual returns estimated from the regression model on each day of the Class Period. Expected returns are those changes in stock prices due to market and industry factors that change the values of all stocks in an economy (market effects) or in a particular industry (industry effects). Thoratec's residual returns are a measure of the change in the stock price due to Company-specific events and are calculated as the difference between Thoratec's actual return and its expected return. ¹⁰⁵

¹⁰² Given time differences between closing prices observed on stock exchanges in different countries, which can bias regression results due to the so called "nonsynchronous trading effect," stocks traded on foreign exchanges have been excluded from my regression analysis. Nonsynchronous trading effects "can create a false impression of predictability in price changes and returns even if true price changes or returns are statistically independent." (*See* Campbell, John Y., Andrew W. Lo and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997, p. 84)

¹⁰³ The industry index is comprised of the stocks listed in Exhibit 11C.

¹⁰⁴ Residual industry index returns are the portions of daily returns on the industry index which are not explained by market effects, as determined from a regression of industry index returns on market index returns during the Control Period. The use of residual industry index returns rather than raw returns eliminates any statistical problems due to multicollinearity. (*See* Greene, William H., *Econometric Analysis*, Prentice Hall, 2012, 7th Ed., Ch. 4, p. 89.)

¹⁰⁵ Exhibit 11A also provides the confidence level for each day of the Class Period, which measures the statistical significance of Thoratec's residual returns. The confidence level associated with a given Company-specific return is measured as one minus the "p-value" of that return, where the p-value represents the conditional probability of observing a Company-specific return. Thus, consistent with the standard frequently employed by social scientists, statistical significance in context of securities litigation merely indicates that a given company-specific

return is a relatively rare occurrence. (*See* Kaye, David H. and David A. Freedman, "Reference Guide on Statistics," in Federal Judicial Center, *Reference Manual on Scientific Evidence*, National Academies Press, 2011, 3rd Ed., pp. 250–252: "Statistical significance is determined by comparing a *p* [*i.e.*, the probability of getting data as extreme as, or more extreme than, the actual data—given that the null hypothesis is true] to a preset value, called the significance level." Thus, statistical significance "is merely a label for a certain kind of *p*-value.")



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Education

Ph.D. - University of California, Irvine

2009

Irvine, California

- Dissertation: Macro-Augmented Volatility Forecasting.
 - Research Interests: Market efficiency of underlying and derivative securities, volatility forecasting, risk management, financial econometrics, valuation and corporate finance.
 - Teaching Experience: Corporate Finance, Investments, and Risk Management.

M.Sc. - London Business School

2004

Finance

Finance

London, England

Earned distinction for Masters Thesis on the informational efficiency of credit-linked notes.

A.B. – Princeton University

2001

Economics

Princeton, New Jersey

Employment History

Vice President

Stanford Consulting Group, Inc.

Summer 2015 – present Redwood City, California

The Stanford Consulting Group, Inc. provides economic research and expert testimony for business litigation, as well as regulatory and legislative proceedings.

Responsibilities include:

- quantifying economic damages (*e.g.*, present value of expected future earnings, price inflation, lost profits, unjust enrichment, reasonable royalties);
- enterprise, project, equity, debt, derivative-security and intellectual-property valuation;
- assessing the informational efficiency of financial securities;
- analyzing fairness opinions related to corporate mergers and acquisitions;
- econometric modeling and analysis;
- marginal cost analysis;
- preparing expert reports and declarations;
- providing deposition and trial testimony; and
- supporting counsel in preparation for cross examination of opposing experts.

Senior Consultant

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Summer 2009 – Summer 2015 Redwood City, California

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Associate Summer 2004 - Summer 2005

Stanford Consulting Group, Inc. Redwood City, California

Mortgage Consultant Fall 2002 – Summer 2003 Woolwich PLC

Oxford, UK

Trading Desk Specialist Fall 2001 – Summer 2002 Merrill Lynch, Defined Asset Funds Plainsboro, New Jersey

Academic Research

Nye, Zachary and Mark Washburn, 2013, "Macro-Augmented Volatility Forecasting," Western Decision Sciences Institute Proceedings. Paper presented at the WDSI Annual Meeting, Long Beach, California, March 27, 2013. Winner of the 2013 Best Theoretical/Empirical Research Paper Awards.

Nye, Zachary and Philippe Jorion, 2009, "Macro-Augmented Volatility Forecasting," Working Paper, University of California at Irvine.

Nye, Zachary and Timothy C. Johnson, 2005, "Market Efficiency's Hidden Teeth: An Unambiguous Test for Derivative Securities," Working Paper, London Business School.

Testimony

L-3 Communications Corporation, et al. v. Serco, Inc., United States District Court for the Eastern District of Virginia, Case No. 1:15-cv-701-GBL-JFA

Deposition October 22, 2015 Deposition October 18, 2017

In re Juno Therapeutics, Inc., United States District Court of Western District of Washington at Seattle, Case No. C16-1069RSM

October 4, 2017 Deposition

Brad Mauss, et al. v. NuVasive, Inc., et al., United States District Court, Southern District of California, Case No.: 13-cv-02005-JM

Deposition December 20, 2016 Deposition August 28, 2017

In re Akorn, Inc. Securities Litigation, United States District Court, Northern District of Illinois, Eastern Division, Case No. 15-CV-01944

Deposition June 21, 2017

City of Pontiac General Employees' Retirement System, et al. v. Dell Inc., et al., United States District Court, Western District of Texas, Austin Division, Case No. 1:15-cv-00374-LY

Deposition April 19, 2017

In re Ocwen Financial Corporation Securities Litigation, United States District Court, Southern District of Florida, Case 14-81057-CIV-WPD

Deposition September 23, 2016 Deposition March 28, 2017

Stephen Calfo, et al. v. John P. Messina, Sr., et al., United States District Court, Southern District of New York, Civil Action No. 15 Civ. 04010 (LGS)

Deposition January 5, 2017

Case 4:14-cv-00360-CW Document 99-1 Filed 01/15/18 Page 42 of 418 $\bf Exhibit \ l$

In re EZCORP, Inc. Securities Litigation, United States District Court, Southern District of New York, Case No. 14-cv-6834 (ALC)

Deposition October 14, 2016

Arthur Menaldi, et al. v. Och-Ziff Capital Management Group LLC, et al., United States District Court, Southern District of New York, No. 14-CV-03251-JPO

Deposition October 3, 2016

Keith Thomas, et al. v. MagnaChip Semiconductor Corp., et al., United States District Court, Northern District of California, Case No. 3:14-cv-01160-JST

Deposition September 16, 2016

In re Rocket Fuel, Inc. Securities Litigation, United States District Court, Northern District of California, Oakland Division, Case No. 4:14-cv-03998-PJH

Deposition September 14, 2016

Barbara Strougo, Individually and on Behalf of All Others Similarly Situated v. Barclays PLC, et al., United States District Court, Southern District of New York, Case No. 14-cv-5797 (SAS)

Deposition August 11, 2015 Evidentiary Hearing November 5, 2015 Deposition June 16, 2016

In re Merck & Co., Inc. Securities, Derivative & "ERISA" Litigation, United States District Court, District of New Jersey, Case Numbers: 05-cv-5060; 07-cv-4021; 07-cv-4022; 07-cv-4023; 07-cv-4024; 07-cv-4546; 11-cv-6259; and 15-cv-518

Deposition December 6, 2013 Deposition October 1, 2015

Richard Thorpe and Darrel Weisheit, Individually and on Behalf of All Others Similarly Situated v. Walter Investment Management Corp., et al., United States District Court, Southern District of Florida,

Case No. 1:14-cv-20880-UU

Deposition September 16, 2015

City of Austin Police Retirement System, *Individually and on Behalf of All Others Similarly Situated* v. Kinross Gold Corporation, et al., United States District Court, Southern District of New York,

Civil Action No. 1:12-cv-01203-VEC-KNF

Deposition November 19, 2014

In re El Paso Partners, L.P. Derivative Litigation, Court of Chancery of the State of Delaware, C.A. No. 7141-CS

Deposition September 24, 2013 Trial November 12 and 13, 2014

L-3 Communications Corporation, et al. v. Jaxon Engineering & Maintenance, Inc., et al., United States District Court for the District of Colorado, Civil Action No. 10-cv-02868-MSK-KMT

Deposition August 7, 2014

Axa Corporate Solutions Assurance, et al. v. Honeywell International, Inc., et al., Superior Court of the State of Arizona in and for the County of Maricopa, No. CV2011-019334

Deposition February 24, 2014

In re Heckmann Corporation Securities Litigation, United States District Court for the District of Delaware, Case No. 1:10-cv-00378-LPS-MPT

Deposition November 9, 2012

Thoratec Corp.

Document List

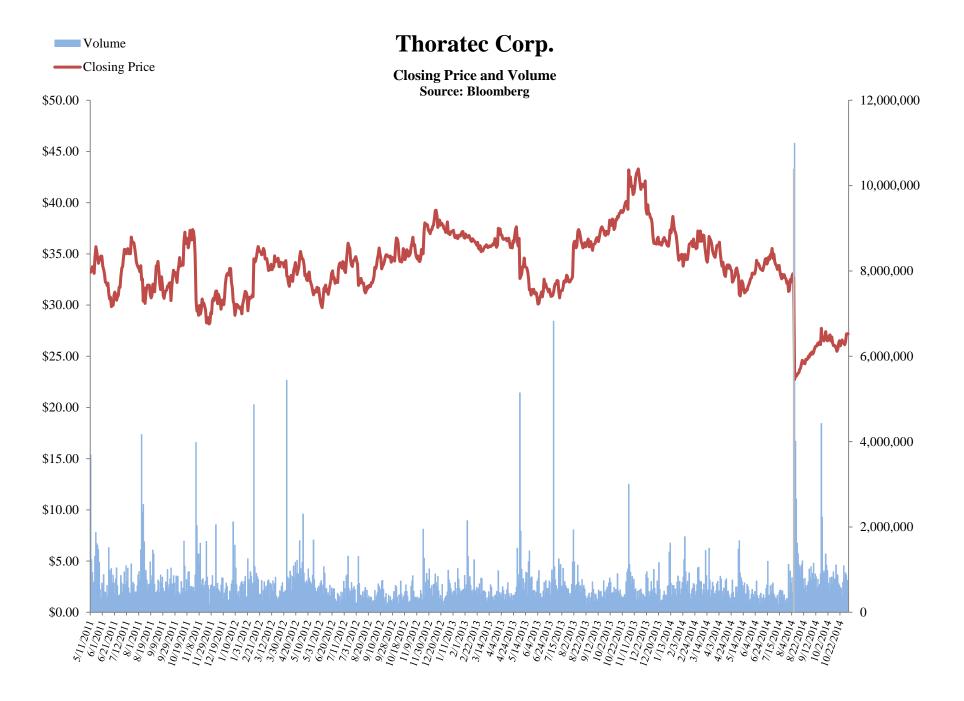
From Counsel

Material	Document Date
Amended Class Action Complaint	6/20/2014
Second Amended Complaint	1/20/2015

Obtained by Stanford Consulting Group, Inc.

Material	Document Date	Source
Academic journal articles, reference materials (e.g., books, web sites, and news		
articles), and court filings	Various	See footnotes to Nye Report
		Thomson Reuters Knowledge, Thomson Reuters Eikon,
Analyst Reports	5/2011-8/2014	Bloomberg
Analyst ratings and price target data	5/2011-8/2014	Bloomberg
SEC filings for Thoratec	5/2011-8/2014	Edgar Pro
News articles and conference call transcripts for Thoratec	5/2011-8/2014	Factiva; Bloomberg
Daily closing bid & ask prices for Thoratec shares and for sample companies on		
the NASDAQ GS Market	5/2011-8/2014	Bloomberg
NYSE stock exchange market activity statistics	2011-2014	NYSE Factbook (online)
Total returns & market capitalization for comparables and/or competitors of		
Thoratec	2010-2014	Bloomberg
Price, volume, dividend, shares outstanding data for Thoratec	2010-2014	Bloomberg
Quarterly institutional and insider holdings data for Thoratec stock	Q1-11 - Q4-14	Thomson Reuters Eikon
Daily index levels for S&P 500	2010-2014	Bloomberg
Short interest data for Thoratec	2011-2014	Bloomberg
		NYSE Factbook
		(http://www.nyxdata.com/nysedata/asp/factbook/viewer_edi
NYSE Group shares outstanding data	5/2011-8/2014	tion.asp?mode=tables&key=333&category=5)
Short interest data for NYSE-listed companies	5/2011-8/2014	Bloomberg
Nasdaq market maker activity data for Thoratec	5/2011-8/2014	Bloomberg

Exhibit 3A



Thoratec Corp. Closing Price and Volume

Date	Volume	Closing Price	Price Change	Return
5/11/2011	3,691,453	\$33.21	-\$1.00	-2.92%
5/12/2011	1,237,670	\$33.41	\$0.20	0.60%
5/13/2011	939,234	\$33.75	\$0.34	1.02%
5/16/2011	669,681	\$33.60	-\$0.15	-0.44%
5/17/2011	713,738	\$33.09	-\$0.51	-1.52%
5/18/2011	1,313,150	\$34.64	\$1.55	4.68%
5/19/2011	1,869,556	\$35.70	\$1.06	3.06%
5/20/2011	1,609,269	\$35.23	-\$0.47	-1.32%
5/23/2011	1,572,664	\$34.65	-\$0.58	-1.65%
5/24/2011	1,469,196	\$34.08	-\$0.57	-1.65%
5/25/2011	1,174,175	\$34.37	\$0.29	0.85%
5/26/2011	527,624	\$34.70	\$0.33	0.96%
5/27/2011	313,643	\$34.80	\$0.10	0.29%
5/31/2011	687,658	\$34.77	-\$0.03	-0.09%
6/1/2011	619,138	\$33.76	-\$1.01	-2.90%
6/2/2011	884,234	\$33.52	-\$0.24	-0.71%
6/3/2011	441,624	\$32.99	-\$0.53	-1.58%
6/6/2011	476,215	\$32.25	-\$0.74	-2.24%
6/7/2011	302,988	\$32.21	-\$0.04	-0.12%
6/8/2011	634,996	\$31.90	-\$0.31	-0.96%
6/9/2011	385,239	\$32.14	\$0.24	0.75%
6/10/2011	1,520,327	\$31.01	-\$1.13	-3.52%
6/13/2011	984,136	\$30.59	-\$0.42	-1.35%
6/14/2011	658,899	\$30.76	\$0.17	0.56%
6/15/2011	1,028,565	\$29.85	-\$0.91	-2.96%
6/16/2011	683,036	\$29.98	\$0.13	0.44%
6/17/2011	874,594	\$29.98	\$0.00	0.00%
6/20/2011	689,355	\$30.96	\$0.98	3.27%
6/21/2011	443,511	\$31.26	\$0.30	0.97%
6/22/2011	782,737	\$31.02	-\$0.24	-0.77%
6/23/2011	1,044,053	\$30.47	-\$0.55	-1.77%
6/24/2011	622,549	\$30.81	\$0.34	1.12%
6/27/2011	391,387	\$30.93	\$0.12	0.39%
6/28/2011	395,107	\$31.75	\$0.82	2.65%
6/29/2011	423,168	\$31.73	-\$0.02	-0.06%
6/30/2011	862,183	\$32.82	\$1.09	3.44%
7/1/2011	690,134	\$33.63	\$0.81	2.47%
7/5/2011	469,001	\$33.75	\$0.12	0.36%
7/6/2011	651,214	\$34.58	\$0.83	2.46%
7/7/2011	949,822	\$35.44	\$0.86	2.49%
7/8/2011	643,226	\$35.42	-\$0.02	-0.06%
7/11/2011	1,095,870	\$35.02	-\$0.40	-1.13%
7/12/2011	720,445	\$35.14	\$0.12	0.34%
7/13/2011	1,034,197	\$35.52	\$0.38	1.08%
7/14/2011	574,282	\$35.03	-\$0.49	-1.38%
7/15/2011	451,464	\$35.02	-\$0.01	-0.03%
7/18/2011	448,393	\$35.02	\$0.00	0.00%
7/19/2011	1,136,063	\$36.64	\$1.62	4.63%
7/20/2011	606,691	\$36.23	-\$0.41	-1.12%
7/21/2011	707,700	\$36.10	-\$0.13	-0.36%
7/22/2011	664,389	\$36.10	\$0.00	0.00%
7/25/2011	446,974	\$35.52	-\$0.58	-1.61%
7/26/2011	479,517	\$34.93	-\$0.59	-1.66%

Date	Volume	Closing Price	Price Change	Return
7/27/2011	469,763	\$34.18	-\$0.75	-2.15%
7/28/2011	617,893	\$33.88	-\$0.30	-0.88%
7/29/2011	879,270	\$33.69	-\$0.19	-0.56%
8/1/2011	955,296	\$33.52	-\$0.17	-0.50%
8/2/2011	740,276	\$33.25	-\$0.27	-0.81%
8/3/2011	1,466,976	\$33.85	\$0.60	1.80%
8/4/2011	4,166,688	\$32.44	-\$1.41	-4.17%
8/5/2011	2,331,630	\$32.54	\$0.10	0.31%
8/8/2011	2,527,574	\$30.38	-\$2.16	-6.64%
8/9/2011	1,655,359	\$31.66	\$1.28	4.21%
8/10/2011	918,439	\$30.16	-\$1.50	-4.74%
8/11/2011	985,169	\$31.21	\$1.05	3.48%
8/12/2011	757,945	\$31.73	\$0.52	1.67%
8/15/2011	507,603	\$31.95	\$0.22	0.69%
8/16/2011	661,651	\$31.95	\$0.00	0.00%
8/17/2011	627,144	\$31.93	-\$0.02	-0.06%
8/18/2011	1,186,643	\$31.00	-\$0.93	-2.91%
8/19/2011	733,643	\$30.70	-\$0.30	-0.97%
8/22/2011	858,565	\$30.94	\$0.24	0.78%
8/23/2011	1,459,658	\$32.05	\$1.11	3.59%
8/24/2011	1,370,549	\$31.79	-\$0.26	-0.81%
8/25/2011	661,311	\$31.29	-\$0.50	-1.57%
8/26/2011	466,165	\$32.50	\$1.21	3.87%
8/29/2011	459,634	\$33.83	\$1.33	4.09%
8/30/2011	511,098	\$33.87	\$0.04	0.12%
8/31/2011	760,610	\$34.26	\$0.39	1.15%
9/1/2011	716,281	\$33.24	-\$1.02	-2.98%
9/2/2011	451,869	\$32.08	-\$1.16	-3.49%
9/6/2011	877,294	\$31.52	-\$0.56	-1.75%
9/7/2011	687,845	\$32.76	\$1.24	3.93%
9/8/2011	823,814	\$32.05	-\$0.71	-2.17%
9/9/2011	560,981	\$30.92	-\$1.13	-3.53%
9/12/2011	479,629	\$30.66	-\$0.26	-0.84%
9/13/2011	500,157	\$31.16	\$0.50	1.63%
9/14/2011	715,913	\$31.40	\$0.24	0.77%
9/15/2011	629,020	\$31.46	\$0.06	0.19%
9/16/2011	1,005,756	\$31.88	\$0.42	1.34%
9/19/2011	562,367	\$31.76	-\$0.12	-0.38%
9/20/2011	648,020	\$32.14	\$0.38	1.20%
9/21/2011	787,693	\$32.19	\$0.05	0.16%
9/22/2011	1,040,494	\$30.43	-\$1.76	-5.47%
9/23/2011	672,477	\$31.93	\$1.50	4.93%
9/26/2011	658,761	\$32.75	\$0.82	2.57%
9/27/2011	858,394	\$33.40	\$0.65	1.98%
9/28/2011	687,179	\$32.96	-\$0.44	-1.32%
9/29/2011	407,931	\$33.17	\$0.21	0.64%
9/30/2011	855,556	\$32.64	-\$0.53	-1.60%
10/3/2011	830,188	\$32.21	-\$0.43	-1.32%
10/4/2011	848,346	\$33.25	\$1.04	3.23%
10/5/2011	470,818	\$33.83	\$0.58	1.74%
10/6/2011	417,615	\$34.64	\$0.81	2.39%
10/7/2011	427,310	\$33.81	-\$0.83	-2.40%
10/10/2011	720,223	\$33.88	\$0.07	0.21%
	. ,			

Date	Volume	Closing Price	Price Change	Return
10/11/2011	455,527	\$33.97	\$0.09	0.27%
10/12/2011	564,562	\$33.89	-\$0.08	-0.24%
10/13/2011	1,668,079	\$36.13	\$2.24	6.61%
10/14/2011	1,082,944	\$37.13	\$1.00	2.77%
10/17/2011	488,076	\$36.00	-\$1.13	-3.04%
10/18/2011	769,658	\$36.54	\$0.54	1.50%
10/19/2011	491,352	\$36.43	-\$0.11	-0.30%
10/20/2011	941,320	\$35.60	-\$0.83	-2.28%
10/21/2011	958,048	\$36.13	\$0.53	1.49%
10/24/2011	610,660	\$37.29	\$1.16	3.21%
10/25/2011	548,996	\$36.95	-\$0.34	-0.91%
10/26/2011	607,791	\$36.36	-\$0.59	-1.60%
10/27/2011	567,354	\$37.37	\$1.01	2.78%
10/28/2011	591,179	\$37.20	-\$0.17	-0.45%
10/31/2011	483,282	\$36.51	-\$0.69	-1.85%
11/1/2011	879,357	\$34.89	-\$1.62	-4.44%
11/2/2011	3,981,527	\$30.46	-\$4.43	-12.70%
11/3/2011	2,030,735	\$29.44	-\$1.02	-3.35%
11/4/2011	1,366,227	\$29.39	-\$0.05	-0.17%
11/7/2011	1,366,814	\$29.00	-\$0.39	-1.33%
11/8/2011	1,139,876	\$29.96	\$0.96	3.31%
11/9/2011	1,620,489	\$29.13	-\$0.83	-2.77%
11/10/2011	634,110	\$29.51	\$0.38	1.30%
11/11/2011	762,054	\$30.59	\$1.08	3.66%
11/14/2011	787,358	\$30.04	-\$0.55	-1.80%
11/15/2011	555,708	\$30.21	\$0.17	0.57%
11/16/2011	632,609	\$29.85	-\$0.36	-1.19%
11/17/2011	722,275	\$29.55	-\$0.30	-1.01%
11/18/2011	1,661,385	\$28.27	-\$1.28	-4.33%
11/21/2011	826,833	\$28.27	\$0.00	0.00%
11/22/2011	627,827	\$28.78	\$0.51	1.80%
11/23/2011	542,266	\$28.16	-\$0.62	-2.15%
11/25/2011	199,518	\$28.25	\$0.09	0.32%
11/28/2011	634,648	\$29.26	\$1.01	3.58%
11/29/2011	642,210	\$29.14	-\$0.12	-0.41%
11/30/2011	863,088	\$30.42	\$1.28	4.39%
12/1/2011	561,617	\$30.65	\$0.23	0.76%
12/2/2011	609,047	\$30.44	-\$0.21	-0.69%
12/5/2011	527,290	\$31.01	\$0.57	1.87%
12/6/2011	2,054,838	\$31.38	\$0.37	1.19%
12/7/2011	554,076	\$31.37	-\$0.01	-0.03%
12/8/2011	683,006	\$30.13	-\$1.24	-3.95%
12/9/2011	536,054	\$31.05	\$0.92	3.05%
12/12/2011	486,997	\$30.66	-\$0.39	-1.26%
12/13/2011	452,893	\$30.35	-\$0.31	-1.01%
12/14/2011	640,201	\$29.59	-\$0.76	-2.50%
12/15/2011	809,608	\$30.44	\$0.85	2.87%
12/16/2011	802,269	\$30.50	\$0.06	0.20%
12/19/2011	311,462	\$30.03	-\$0.47	-1.54%
12/20/2011	452,313	\$30.77	\$0.74	2.46%
12/21/2011	551,120	\$32.05	\$1.28	4.16%
12/22/2011	691,675	\$32.81	\$0.76	2.37%
12/23/2011	613,083	\$33.04	\$0.23	0.70%
12/23/2011	613,083	\$33.04	\$0.23	0.70%

Date	Volume	Closing Price	Price Change	Return
12/27/2011	270,598	\$33.12	\$0.08	0.24%
12/28/2011	292,790	\$32.92	-\$0.20	-0.60%
12/29/2011	496,998	\$33.58	\$0.66	2.00%
12/30/2011	459,996	\$33.56	-\$0.02	-0.06%
1/3/2012	668,950	\$32.24	-\$1.32	-3.93%
1/4/2012	744,636	\$31.62	-\$0.62	-1.92%
1/5/2012	2,122,987	\$30.40	-\$1.22	-3.86%
1/6/2012	662,628	\$30.13	-\$0.27	-0.89%
1/9/2012	1,574,414	\$29.00	-\$1.13	-3.75%
1/10/2012	1,037,630	\$29.48	\$0.48	1.66%
1/11/2012	646,440	\$30.08	\$0.60	2.04%
1/12/2012	405,740	\$30.02	-\$0.06	-0.20%
1/13/2012	487,061	\$29.89	-\$0.13	-0.43%
1/17/2012	306,841	\$29.71	-\$0.18	-0.60%
1/18/2012	606,724	\$29.64	-\$0.07	-0.24%
1/19/2012	688,654	\$29.82	\$0.18	0.61%
1/20/2012	722,903	\$29.14	-\$0.68	-2.28%
1/23/2012	657,317	\$30.06	\$0.92	3.16%
1/24/2012	492,856	\$30.47	\$0.41	1.36%
1/25/2012	724,674	\$30.91	\$0.44	1.44%
1/26/2012	839,407	\$31.35	\$0.44	1.42%
1/27/2012	360,472	\$31.25	-\$0.10	-0.32%
1/30/2012	367,304	\$30.97	-\$0.28	-0.90%
1/31/2012	1,255,256	\$29.43	-\$1.54	-4.97%
2/1/2012	777,844	\$30.32	\$0.89	3.02%
2/2/2012	659,288	\$30.76	\$0.44	1.45%
2/3/2012	952,415	\$30.66	-\$0.10	-0.33%
2/6/2012	845,471	\$30.75	\$0.09	0.29%
2/7/2012	609,713	\$30.98	\$0.23	0.75%
2/8/2012	691,170	\$30.81	-\$0.17	-0.55%
2/9/2012	4,866,084	\$34.52	\$3.71	12.04%
2/10/2012	1,070,768	\$34.19	-\$0.33	-0.96%
2/13/2012	723,728	\$34.32	\$0.13	0.38%
2/14/2012	913,896	\$34.76	\$0.44	1.28%
2/15/2012	831,289	\$35.32	\$0.56	1.61%
2/16/2012	769,694	\$35.72	\$0.40	1.13%
2/17/2012	432,975	\$35.38	-\$0.34	-0.95%
2/21/2012	401,388	\$35.22	-\$0.16	-0.45%
2/22/2012	420,648	\$35.16	-\$0.06	-0.17%
2/23/2012	746,406	\$34.90	-\$0.26	-0.74%
2/24/2012	250,615	\$35.03	\$0.13	0.37%
2/27/2012	510,283	\$35.53	\$0.50	1.43%
2/28/2012	714,463	\$35.34	-\$0.19	-0.53%
2/29/2012	610,032	\$34.50	-\$0.84	-2.38%
3/1/2012	520,503	\$34.52	\$0.02	0.06%
3/2/2012	620,531	\$34.53	\$0.01	0.03%
3/5/2012	734,135	\$33.94	-\$0.59	-1.71%
3/6/2012	760,159	\$33.38	-\$0.56	-1.65%
3/7/2012	337,810	\$33.45	\$0.07	0.21%
3/8/2012	687,899	\$33.47	\$0.02	0.06%
3/9/2012	649,752	\$33.99	\$0.52	1.55%
3/12/2012	500,644	\$33.46	-\$0.53	-1.56%
3/13/2012	738,924	\$33.67	\$0.21	0.63%
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Date	Volume	Closing Price	Price Change	Return
3/14/2012	469,610	\$33.77	\$0.10	0.30%
3/15/2012	670,178	\$34.81	\$1.04	3.08%
3/16/2012	821,842	\$34.22	-\$0.59	-1.69%
3/19/2012	386,763	\$34.45	\$0.23	0.67%
3/20/2012	277,537	\$34.36	-\$0.09	-0.26%
3/21/2012	335,225	\$34.58	\$0.22	0.64%
3/22/2012	365,088	\$33.77	-\$0.81	-2.34%
3/23/2012	504,400	\$33.75	-\$0.02	-0.06%
3/26/2012	464,883	\$34.18	\$0.43	1.27%
3/27/2012	609,907	\$34.11	-\$0.07	-0.20%
3/28/2012	696,442	\$34.13	\$0.02	0.06%
3/29/2012	469,351	\$34.08	-\$0.05	-0.15%
3/30/2012	469,265	\$33.71	-\$0.37	-1.09%
4/2/2012	497,142	\$34.23	\$0.52	1.54%
4/3/2012	515,372	\$34.35	\$0.12	0.35%
4/4/2012	5,441,389	\$32.83	-\$1.52	-4.43%
4/5/2012	823,332	\$32.80	-\$0.03	-0.09%
4/9/2012	690,903	\$32.15	-\$0.65	-1.98%
4/10/2012	789,887	\$31.83	-\$0.32	-1.00%
4/11/2012	963,679	\$32.55	\$0.72	2.26%
4/12/2012	860,283	\$32.90	\$0.35	1.08%
4/13/2012	507,279	\$32.41	-\$0.49	-1.49%
4/16/2012	844,861	\$32.31	-\$0.10	-0.32%
4/17/2012	1,087,337	\$33.39	\$1.09	3.36%
4/18/2012	804,577	\$33.66	\$0.27	0.81%
4/19/2012	1,173,459	\$34.15	\$0.49	1.46%
4/20/2012	907,837	\$33.57	-\$0.58	-1.70%
4/23/2012	1,221,294	\$32.98	-\$0.59	-1.76%
4/24/2012	854,278	\$33.38	\$0.40	1.21%
4/25/2012	903,806	\$33.69	\$0.31	0.93%
4/26/2012	1,679,487	\$34.76	\$1.07	3.18%
4/27/2012	1,024,559	\$35.23	\$0.47	1.35%
4/30/2012	844,236	\$34.81	-\$0.42	-1.19%
5/1/2012	1,168,693	\$34.50	-\$0.31	-0.89%
5/2/2012	2,300,738	\$34.46	-\$0.04	-0.12%
5/3/2012	919,077	\$33.90	-\$0.56	-1.63%
5/4/2012	703,566	\$32.87	-\$1.03	-3.04%
5/7/2012	651,624	\$33.00	\$0.13	0.40%
5/8/2012	741,871	\$32.48	-\$0.52	-1.58%
5/9/2012	676,690	\$32.39	-\$0.09	-0.28%
5/10/2012	1,017,793	\$33.07	\$0.68	2.10%
5/11/2012	803,847	\$33.23	\$0.16	0.48%
5/14/2012	731,796	\$32.44	-\$0.79	-2.38%
5/15/2012	691,274	\$32.12	-\$0.32	-0.99%
5/16/2012	658,076	\$31.87	-\$0.25	-0.78%
5/17/2012	866,659	\$31.35	-\$0.52	-1.63%
5/18/2012	1,693,762	\$31.00	-\$0.35	-1.12%
5/21/2012	766,353	\$31.42	\$0.42	1.35%
5/22/2012	571,274	\$31.23	-\$0.19	-0.60%
5/23/2012	498,837	\$31.37	\$0.14	0.45%
5/24/2012	451,010	\$31.74	\$0.37	1.18%
5/25/2012	564,558	\$31.28	-\$0.46	-1.45%
5/29/2012	610,686	\$31.65	\$0.37	1.18%
5,2,72012	510,000	Ψυ 1.00	Ψ0.57	1.10/0

Date	Volume	Closing Price	Price Change	Return
5/30/2012	547,065	\$30.89	-\$0.76	-2.40%
5/31/2012	685,975	\$30.34	-\$0.55	-1.78%
6/1/2012	747,854	\$29.96	-\$0.38	-1.25%
6/4/2012	636,663	\$29.75	-\$0.21	-0.70%
6/5/2012	401,291	\$30.44	\$0.69	2.32%
6/6/2012	1,073,624	\$31.64	\$1.20	3.94%
6/7/2012	920,078	\$31.72	\$0.08	0.25%
6/8/2012	556,163	\$31.96	\$0.24	0.76%
6/11/2012	555,719	\$31.31	-\$0.65	-2.03%
6/12/2012	394,906	\$31.53	\$0.22	0.70%
6/13/2012	460,697	\$31.05	-\$0.48	-1.52%
6/14/2012	387,803	\$31.49	\$0.44	1.42%
6/15/2012	637,466	\$31.90	\$0.41	1.30%
6/18/2012	377,206	\$32.38	\$0.48	1.50%
6/19/2012	574,679	\$33.10	\$0.72	2.22%
6/20/2012	464,358	\$33.34	\$0.24	0.73%
6/21/2012	545,831	\$32.58	-\$0.76	-2.28%
6/22/2012	556,615	\$32.69	\$0.11	0.34%
6/25/2012	315,192	\$32.13	-\$0.56	-1.71%
6/26/2012	202,175	\$32.28	\$0.15	0.47%
6/27/2012	267,381	\$32.40	\$0.12	0.37%
6/28/2012	447,429	\$32.21	-\$0.19	-0.59%
6/29/2012	404,922	\$33.58	\$1.37	4.25%
7/2/2012	362,529	\$34.03	\$0.45	1.34%
7/3/2012	164,618	\$34.12	\$0.09	0.26%
7/5/2012	480,663	\$33.93	-\$0.19	-0.56%
7/6/2012	301,167	\$33.59	-\$0.34	-1.00%
7/9/2012	463,341	\$34.25	\$0.66	1.96%
7/10/2012	725,773	\$34.12	-\$0.13	-0.38%
7/11/2012	558,776	\$33.38	-\$0.74	-2.17%
7/12/2012	290,447	\$33.17	-\$0.21	-0.63%
7/13/2012	849,999	\$34.21	\$1.04	3.14%
7/16/2012	885,580	\$35.10	\$0.89	2.60%
7/17/2012	1,314,964	\$36.04	\$0.94	2.68%
7/18/2012	560,418	\$35.74	-\$0.30	-0.83%
7/19/2012	401,573	\$35.52	-\$0.22	-0.62%
7/20/2012	502,146	\$34.36	-\$1.16	-3.27%
7/23/2012	703,044	\$33.94	-\$0.42	-1.22%
7/24/2012	504,924	\$33.76	-\$0.18	-0.53%
7/25/2012	561,998	\$34.33	\$0.57	1.69%
7/26/2012	607,615	\$34.37	\$0.04	0.12%
7/27/2012	529,162	\$34.55	\$0.18	0.52%
7/30/2012	203,261	\$34.73	\$0.18	0.52%
7/31/2012	226,273	\$34.31	-\$0.42	-1.21%
8/1/2012	640,411	\$34.00	-\$0.31	-0.90%
8/2/2012	1,310,278	\$31.92	-\$2.08	-6.12%
8/3/2012	678,848	\$32.08	\$0.16	0.50%
8/6/2012	409,334	\$32.24	\$0.16	0.50%
8/7/2012	396,093	\$32.61	\$0.37	1.15%
8/8/2012	320,647	\$32.26	-\$0.35	-1.07%
8/9/2012	482,987	\$32.10	-\$0.16	-0.50%
8/10/2012	349,244	\$32.14	\$0.04	0.12%
8/13/2012	501,912	\$31.43	-\$0.71	-2.21%

Date	Volume	Closing Price	Price Change	Return
8/14/2012	585,558	\$31.19	-\$0.24	-0.76%
8/15/2012	335,626	\$31.33	\$0.14	0.45%
8/16/2012	517,457	\$31.82	\$0.49	1.56%
8/17/2012	326,463	\$31.63	-\$0.19	-0.60%
8/20/2012	385,510	\$31.90	\$0.27	0.85%
8/21/2012	301,816	\$31.92	\$0.02	0.06%
8/22/2012	356,041	\$31.82	-\$0.10	-0.31%
8/23/2012	351,008	\$32.20	\$0.38	1.19%
8/24/2012	247,837	\$32.16	-\$0.04	-0.12%
8/27/2012	269,813	\$32.37	\$0.21	0.65%
8/28/2012	279,214	\$32.80	\$0.43	1.33%
8/29/2012	511,934	\$33.68	\$0.88	2.68%
8/30/2012	281,765	\$33.56	-\$0.12	-0.36%
8/31/2012	384,414	\$33.89	\$0.33	0.98%
9/4/2012	463,079	\$34.50	\$0.61	1.80%
9/5/2012	667,427	\$34.93	\$0.43	1.25%
9/6/2012	609,886	\$35.58	\$0.65	1.86%
9/7/2012	552,500	\$34.95	-\$0.63	-1.77%
9/10/2012	516,967	\$34.54	-\$0.41	-1.17%
9/11/2012	736,312	\$33.53	-\$1.01	-2.92%
9/12/2012	749,413	\$33.84	\$0.31	0.91%
9/13/2012	541,737	\$33.94	\$0.10	0.31%
9/14/2012	275,289	\$34.26	\$0.32	0.94%
9/17/2012	343,471	\$34.65	\$0.39	1.14%
9/18/2012	441,951	\$34.90	\$0.25	0.72%
9/19/2012	161,112	\$34.91	\$0.01	0.03%
9/20/2012	224,372	\$34.79	-\$0.12	-0.34%
9/21/2012	405,266	\$34.69	-\$0.10	-0.29%
9/24/2012	270,515	\$34.66	-\$0.03	-0.09%
9/25/2012	367,049	\$34.79	\$0.13	0.38%
9/26/2012	280,981	\$34.19	-\$0.60	-1.72%
9/27/2012	242,920	\$34.65	\$0.46	1.35%
9/28/2012	307,952	\$34.60	-\$0.05	-0.14%
10/1/2012	485,795	\$34.46	-\$0.14	-0.40%
10/2/2012	304,812	\$34.29	-\$0.17	-0.49%
10/3/2012	633,533	\$35.82	\$1.53	4.46%
10/4/2012	594,443	\$36.56	\$0.74	2.07%
10/5/2012	363,466	\$36.42	-\$0.14	-0.38%
10/8/2012	207,451	\$36.06	-\$0.36	-0.99%
10/9/2012	407,155	\$34.86	-\$1.20	-3.33%
10/10/2012	399,851	\$34.26	-\$0.60	-1.72%
10/11/2012	735,533	\$34.37	\$0.11	0.32%
10/12/2012	435,769	\$34.21	-\$0.16	-0.47%
10/15/2012	288,533	\$34.50	\$0.29	0.85%
10/16/2012	356,386	\$35.51	\$1.01	2.93%
10/17/2012	395,928	\$35.20	-\$0.31	-0.87%
10/18/2012	484,714	\$34.43	-\$0.77	-2.19%
10/19/2012	645,170	\$34.80	\$0.37	1.07%
10/22/2012	489,557	\$35.41	\$0.61	1.75%
10/23/2012	371,721	\$35.28	-\$0.13	-0.37%
10/24/2012	242,905	\$34.76	-\$0.52	-1.47%
10/25/2012	239,733	\$34.85	\$0.09	0.26%
10/26/2012	269,245	\$35.05	\$0.20	0.57%
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Date	Volume	Closing Price	Price Change	Return
10/31/2012	610,851	\$35.70	\$0.65	1.85%
11/1/2012	739,071	\$36.05	\$0.35	0.98%
11/2/2012	858,631	\$36.62	\$0.57	1.58%
11/5/2012	493,925	\$35.81	-\$0.81	-2.21%
11/6/2012	357,195	\$35.91	\$0.10	0.28%
11/7/2012	351,470	\$35.15	-\$0.76	-2.12%
11/8/2012	324,031	\$34.75	-\$0.40	-1.14%
11/9/2012	361,250	\$34.51	-\$0.24	-0.69%
11/12/2012	286,111	\$34.79	\$0.28	0.81%
11/13/2012	341,809	\$34.29	-\$0.50	-1.44%
11/14/2012	311,544	\$34.25	-\$0.04	-0.12%
11/15/2012	518,850	\$34.50	\$0.25	0.73%
11/16/2012	429,569	\$35.44	\$0.94	2.72%
11/19/2012	288,341	\$35.39	-\$0.05	-0.14%
11/20/2012	1,951,458	\$35.00	-\$0.39	-1.10%
11/21/2012	1,270,148	\$37.24	\$2.24	6.40%
11/23/2012	353,254	\$38.03	\$0.79	2.12%
11/26/2012	705,751	\$37.78	-\$0.25	-0.66%
11/27/2012	914,359	\$37.89	\$0.11	0.29%
11/28/2012	528,159	\$37.83	-\$0.06	-0.16%
11/29/2012	756,461	\$37.29	-\$0.54	-1.43%
11/30/2012	1,018,201	\$37.20	-\$0.09	-0.24%
12/3/2012	525,161	\$36.97	-\$0.23	-0.62%
12/4/2012	567,450	\$37.35	\$0.38	1.03%
12/5/2012	634,639	\$37.35	\$0.00	0.00%
12/6/2012	379,277	\$37.69	\$0.34	0.91%
12/7/2012	660,826	\$37.81	\$0.12	0.32%
12/10/2012	657,346	\$38.52	\$0.71	1.88%
12/11/2012	901,555	\$39.23	\$0.71	1.84%
12/12/2012	701,059	\$39.27	\$0.04	0.10%
12/13/2012	614,759	\$38.69	-\$0.58	-1.48%
12/14/2012	844,601	\$37.58	-\$1.11	-2.87%
12/17/2012	505,658	\$37.96	\$0.38	1.01%
12/18/2012	325,414	\$38.32	\$0.36	0.95%
12/19/2012	397,318	\$37.79	-\$0.53	-1.38%
12/20/2012	301,909	\$38.01	\$0.22	0.58%
12/21/2012	655,702	\$37.92	-\$0.09	-0.24%
12/24/2012	156,318	\$37.78	-\$0.14	-0.37%
12/26/2012	261,709	\$37.47	-\$0.31	-0.82%
12/27/2012	328,029	\$37.42	-\$0.05	-0.13%
12/28/2012	371,475	\$37.09	-\$0.33	-0.88%
12/31/2012	388,184	\$37.52	\$0.43	1.16%
1/2/2013	478,502	\$38.12	\$0.60	1.60%
1/3/2013	987,155	\$37.00	-\$1.12	-2.94%
1/4/2013	760,680	\$37.01	\$0.01	0.03%
1/7/2013	676,039	\$36.87	-\$0.14	-0.38%
1/8/2013	560,072	\$37.15	\$0.28	0.76%
1/9/2013	476,758	\$37.16	\$0.01	0.03%
1/10/2013	399,033	\$37.22	\$0.06	0.16%
1/11/2013	503,856	\$37.31	\$0.09	0.24%
1/14/2013	479,711	\$36.81	-\$0.50	-1.34%
1/15/2013	702,689	\$36.58	-\$0.23	-0.62%
1/16/2013	557,369	\$36.74	\$0.16	0.44%
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Date	Volume	Closing Price	Price Change	Return
1/17/2013	388,856	\$36.79	\$0.05	0.14%
1/18/2013	1,028,121	\$36.48	-\$0.31	-0.84%
1/22/2013	775,033	\$36.67	\$0.19	0.52%
1/23/2013	561,308	\$36.84	\$0.17	0.46%
1/24/2013	436,494	\$36.75	-\$0.09	-0.24%
1/25/2013	504,178	\$36.91	\$0.16	0.44%
1/28/2013	492,837	\$37.16	\$0.25	0.68%
1/29/2013	535,464	\$37.18	\$0.02	0.05%
1/30/2013	527,561	\$36.66	-\$0.52	-1.40%
1/31/2013	866,913	\$36.53	-\$0.13	-0.35%
2/1/2013	542,631	\$36.94	\$0.41	1.12%
2/4/2013	649,884	\$36.81	-\$0.13	-0.35%
2/5/2013	2,147,951	\$36.63	-\$0.18	-0.49%
2/6/2013	1,307,181	\$36.69	\$0.06	0.16%
2/7/2013	722,036	\$36.80	\$0.11	0.30%
2/8/2013	837,966	\$36.55	-\$0.25	-0.68%
2/11/2013	635,609	\$36.36	-\$0.19	-0.52%
2/12/2013	507,135	\$36.20	-\$0.16	-0.44%
2/13/2013	483,379	\$36.49	\$0.29	0.80%
2/14/2013	533,449	\$36.38	-\$0.11	-0.30%
2/15/2013	1,234,898	\$36.25	-\$0.11	-0.36%
2/19/2013	515,666	\$36.18	-\$0.13	-0.19%
2/20/2013	459,498	\$36.03	-\$0.07	-0.19%
2/21/2013	588,146	\$35.84	-\$0.19	-0.41%
2/22/2013	399,467	\$36.12	\$0.28	0.78%
			-	-1.52%
2/25/2013	556,860	\$35.57	-\$0.55	
2/26/2013	667,784	\$35.45	-\$0.12	-0.34%
2/27/2013	413,262	\$35.80	\$0.35 -\$0.58	0.99%
2/28/2013	801,153	\$35.22		-1.62%
3/1/2013	791,866	\$35.29	\$0.07	0.20%
3/4/2013	481,570	\$35.28	-\$0.01	-0.03%
3/5/2013	506,827	\$35.50	\$0.22	0.62%
3/6/2013	497,073	\$35.70	\$0.20	0.56%
3/7/2013	469,515	\$35.68	-\$0.02	-0.06%
3/8/2013	331,630	\$35.89	\$0.21	0.59%
3/11/2013	257,678	\$35.79	-\$0.10	-0.28%
3/12/2013	350,895	\$35.61	-\$0.18	-0.50%
3/13/2013	484,117	\$35.74	\$0.13	0.37%
3/14/2013	355,980	\$35.78	\$0.04	0.11%
3/15/2013	648,422	\$35.71	-\$0.07	-0.20%
3/18/2013	587,409	\$35.79	\$0.08	0.22%
3/19/2013	366,545	\$35.86	\$0.07	0.19%
3/20/2013	359,602	\$36.00	\$0.14	0.39%
3/21/2013	264,146	\$35.88	-\$0.12	-0.33%
3/22/2013	398,102	\$36.50	\$0.62	1.73%
3/25/2013	405,123	\$36.08	-\$0.42	-1.15%
3/26/2013	490,790	\$35.64	-\$0.44	-1.22%
3/27/2013	354,111	\$35.88	\$0.24	0.67%
3/28/2013	976,159	\$37.50	\$1.62	4.51%
4/1/2013	460,495	\$37.04	-\$0.46	-1.22%
4/2/2013	401,909	\$37.44	\$0.40	1.08%
4/3/2013	457,442	\$36.85	-\$0.59	-1.58%
4/4/2013	337,258	\$36.85	\$0.00	0.00%

Date	Volume	Closing Price	Price Change	Return
4/5/2013	601,512	\$36.51	-\$0.34	-0.92%
4/8/2013	506,531	\$36.40	-\$0.11	-0.30%
4/9/2013	291,315	\$36.45	\$0.05	0.14%
4/10/2013	419,007	\$36.48	\$0.03	0.08%
4/11/2013	290,343	\$36.52	\$0.04	0.11%
4/12/2013	527,727	\$36.27	-\$0.25	-0.68%
4/15/2013	698,484	\$36.31	\$0.04	0.11%
4/16/2013	444,020	\$36.53	\$0.22	0.61%
4/17/2013	367,143	\$36.10	-\$0.43	-1.18%
4/18/2013	295,248	\$35.61	-\$0.49	-1.36%
4/19/2013	438,145	\$35.94	\$0.33	0.93%
4/22/2013	252,792	\$35.58	-\$0.36	-1.00%
4/23/2013	390,554	\$36.27	\$0.69	1.94%
4/24/2013	407,232	\$36.11	-\$0.16	-0.44%
4/25/2013	387,301	\$36.86	\$0.75	2.08%
4/26/2013	467,404	\$37.39	\$0.53	1.44%
4/29/2013	591,834	\$37.64	\$0.25	0.67%
4/30/2013	1,501,991	\$36.20	-\$1.44	-3.83%
5/1/2013	729,314	\$35.77	-\$0.43	-1.19%
5/2/2013	885,529	\$36.52	\$0.75	2.10%
5/3/2013	5,146,871	\$32.59	-\$3.93	-10.76%
5/6/2013	1,901,553	\$32.76	\$0.17	0.52%
5/7/2013	1,008,334	\$33.03	\$0.27	0.82%
5/8/2013	548,744	\$33.70	\$0.67	2.03%
5/9/2013	790,970	\$33.85	\$0.15	0.45%
5/10/2013	516,459	\$34.60	\$0.75	2.22%
5/13/2013	694,282	\$33.74	-\$0.86	-2.49%
5/14/2013	940,748	\$33.70	-\$0.04	-0.12%
5/15/2013	923,339	\$33.62	-\$0.08	-0.24%
5/16/2013	404,293	\$33.23	-\$0.39	-1.16%
5/17/2013	1,187,489	\$32.60	-\$0.63	-1.90%
5/20/2013	1,438,390	\$31.49	-\$1.11	-3.40%
5/21/2013	783,732	\$31.52	\$0.03	0.10%
5/22/2013	821,682	\$30.97	-\$0.55	-1.74%
5/23/2013	831,912	\$31.52	\$0.55	1.78%
5/24/2013	490,144	\$31.39	-\$0.13	-0.41%
5/28/2013	517,189	\$31.54	\$0.15	0.48%
5/29/2013	505,624	\$31.10	-\$0.44	-1.40%
5/30/2013	369,191	\$31.25	\$0.15	0.48%
5/31/2013	467,475	\$31.17	-\$0.08	-0.26%
6/3/2013	725,089	\$30.66	-\$0.51	-1.64%
6/4/2013	783,788	\$30.09	-\$0.57	-1.86%
6/5/2013	977,783	\$30.17	\$0.08	0.27%
6/6/2013	410,234	\$30.69	\$0.52	1.72%
6/7/2013	443,152	\$30.97	\$0.28	0.91%
6/10/2013	338,469	\$31.29	\$0.32	1.03%
6/11/2013	354,651	\$30.80	-\$0.49	-1.57%
6/12/2013	502,175	\$31.31	\$0.51	1.66%
6/13/2013	703,483	\$32.53	\$1.22	3.90%
6/14/2013	368,902	\$31.93	-\$0.60	-1.84%
6/17/2013	743,093	\$32.06	\$0.13	0.41%
6/18/2013	539,923	\$31.67	-\$0.39	-1.22%
6/19/2013	563,975	\$31.58	-\$0.09	-0.28%

Date	Volume	Closing Price	Price Change	Return
6/20/2013	520,355	\$31.29	-\$0.29	-0.92%
6/21/2013	735,906	\$31.54	\$0.25	0.80%
6/24/2013	405,150	\$31.19	-\$0.35	-1.11%
6/25/2013	693,540	\$30.84	-\$0.35	-1.12%
6/26/2013	992,803	\$30.88	\$0.04	0.13%
6/27/2013	792,483	\$30.94	\$0.06	0.19%
6/28/2013	6,826,470	\$31.31	\$0.37	1.20%
7/1/2013	1,067,897	\$31.82	\$0.51	1.63%
7/2/2013	766,607	\$32.10	\$0.28	0.88%
7/3/2013	625,560	\$32.07	-\$0.03	-0.09%
7/5/2013	492,654	\$32.41	\$0.34	1.06%
7/8/2013	547,794	\$32.36	-\$0.05	-0.15%
7/9/2013	1,253,006	\$31.32	-\$1.04	-3.21%
7/10/2013	1,002,335	\$30.70	-\$0.62	-1.98%
7/11/2013	1,121,833	\$31.32	\$0.62	2.02%
7/12/2013	583,088	\$31.42	\$0.10	0.32%
7/15/2013	613,278	\$31.42	\$0.00	0.00%
7/16/2013	1,031,157	\$31.76	\$0.34	1.08%
7/17/2013	673,510	\$32.33	\$0.57	1.79%
7/18/2013	724,123	\$32.40	\$0.07	0.22%
7/19/2013	621,569	\$32.25	-\$0.15	-0.46%
7/22/2013	570,739	\$32.92	\$0.67	2.08%
7/23/2013	548,309	\$32.78	-\$0.14	-0.43%
7/24/2013	551,530	\$32.36	-\$0.42	-1.28%
7/25/2013	443,815	\$32.25	-\$0.11	-0.34%
7/26/2013	375,358	\$32.27	\$0.02	0.06%
7/29/2013	447,445	\$32.48	\$0.21	0.65%
7/30/2013	657,604	\$32.56	\$0.08	0.25%
7/31/2013	1,177,387	\$32.79	\$0.23	0.71%
8/1/2013	1,935,520	\$35.87	\$3.08	9.39%
8/2/2013	1,182,288	\$36.20	\$0.33	0.92%
8/5/2013	531,807	\$36.23	\$0.03	0.08%
8/6/2013	631,244	\$35.59	-\$0.64	-1.77%
8/7/2013	656,982	\$35.80	\$0.21	0.59%
8/8/2013	1,109,397	\$37.20	\$1.40	3.91%
8/9/2013	707,214	\$37.38	\$0.18	0.48%
8/12/2013	446,366	\$37.12	-\$0.26	-0.70%
8/13/2013	626,595	\$36.65	-\$0.47	-1.27%
8/14/2013	458,722	\$36.17	-\$0.48	-1.31%
8/15/2013	770,397	\$35.92	-\$0.25	-0.69%
8/16/2013	569,245	\$35.58	-\$0.34	-0.95%
8/19/2013	635,425	\$35.81	\$0.23	0.65%
8/20/2013	547,317	\$36.09	\$0.28	0.78%
8/21/2013	374,891	\$35.70	-\$0.40	-1.09%
8/22/2013	176,774	\$36.01	\$0.31	0.88%
8/23/2013	330,029	\$36.14	\$0.13	0.36%
8/26/2013	387,227	\$36.46	\$0.32	0.89%
8/27/2013	451,149	\$35.68	-\$0.78	-2.14%
8/28/2013	243,746	\$35.79	\$0.11	0.31%
8/29/2013	345,632	\$36.20	\$0.41	1.15%
8/30/2013	462,856	\$35.73	-\$0.47	-1.30%
9/3/2013	710,876	\$35.34	-\$0.39	-1.09%
9/4/2013	540,178	\$35.87	\$0.53	1.50%
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Date	Volume	Closing Price	Price Change	Return
9/5/2013	267,589	\$35.97	\$0.10	0.28%
9/6/2013	435,470	\$36.00	\$0.03	0.08%
9/9/2013	411,830	\$36.37	\$0.37	1.03%
9/10/2013	322,217	\$36.58	\$0.21	0.58%
9/11/2013	251,475	\$36.60	\$0.02	0.05%
9/12/2013	525,604	\$36.21	-\$0.39	-1.07%
9/13/2013	483,006	\$36.70	\$0.49	1.35%
9/16/2013	477,638	\$37.16	\$0.46	1.25%
9/17/2013	495,113	\$37.54	\$0.38	1.02%
9/18/2013	362,657	\$37.64	\$0.10	0.27%
9/19/2013	358,099	\$37.40	-\$0.24	-0.64%
9/20/2013	742,501	\$37.30	-\$0.10	-0.27%
9/23/2013	478,535	\$36.91	-\$0.39	-1.04%
9/24/2013	299,175	\$36.80	-\$0.11	-0.30%
9/25/2013	528,834	\$37.20	\$0.40	1.09%
9/26/2013	596,896	\$37.06	-\$0.14	-0.38%
9/27/2013	437,576	\$36.92	-\$0.14	-0.38%
9/30/2013	691,058	\$37.29	\$0.37	1.00%
10/1/2013	805,862	\$38.30	\$1.01	2.71%
10/2/2013	709,343	\$38.15	-\$0.15	-0.39%
10/2/2013	447,511	\$37.78	-\$0.13	-0.97%
10/3/2013	456,930	\$38.40	\$0.62	1.64%
10/7/2013	462,105	\$37.98	-\$0.42	-1.09%
10/8/2013	586,209	\$37.38	-\$0.42	-1.58%
10/8/2013		\$37.59	\$0.21	0.56%
	453,363			
10/10/2013	541,832	\$38.36	\$0.77	2.05%
10/11/2013	461,466	\$38.31	-\$0.05	-0.13%
10/14/2013	907,221	\$38.66 \$38.56	\$0.35	0.91%
10/15/2013	496,204		-\$0.10	-0.26%
10/16/2013	440,213	\$38.95	\$0.39	1.01%
10/17/2013	533,884	\$38.98	\$0.03	0.08%
10/18/2013	407,836	\$39.24	\$0.26	0.67%
10/21/2013	353,156	\$39.06	-\$0.18	-0.46%
10/22/2013	361,543	\$39.05	-\$0.02	-0.04%
10/23/2013	349,036	\$39.24	\$0.20	0.50%
10/24/2013	417,095	\$39.61	\$0.37	0.94%
10/25/2013	404,940	\$39.99	\$0.38	0.96%
10/28/2013	712,740	\$40.12	\$0.13	0.33%
10/29/2013	936,774	\$39.99	-\$0.13	-0.32%
10/30/2013	1,015,370	\$39.35	-\$0.64	-1.60%
10/31/2013	3,003,751	\$43.21	\$3.86	9.81%
11/1/2013	1,126,812	\$41.91	-\$1.30	-3.01%
11/4/2013	939,491	\$42.51	\$0.60	1.43%
11/5/2013	646,872	\$41.54	-\$0.97	-2.28%
11/6/2013	842,630	\$41.62	\$0.08	0.19%
11/7/2013	689,024	\$40.79	-\$0.83	-1.99%
11/8/2013	775,480	\$40.95	\$0.16	0.39%
11/11/2013	524,701	\$41.55	\$0.60	1.47%
11/12/2013	552,015	\$42.40	\$0.85	2.05%
11/13/2013	304,598	\$42.89	\$0.49	1.16%
11/14/2013	491,890	\$43.02	\$0.13	0.30%
11/15/2013	249,728	\$43.30	\$0.28	0.65%
11/18/2013	516,310	\$42.69	-\$0.61	-1.41%

Date	Volume	Closing Price	Price Change	Return
11/19/2013	341,372	\$41.99	-\$0.70	-1.64%
11/20/2013	545,769	\$41.29	-\$0.70	-1.67%
11/21/2013	451,654	\$41.81	\$0.52	1.26%
11/22/2013	269,268	\$41.76	-\$0.05	-0.12%
11/25/2013	420,335	\$41.61	-\$0.15	-0.36%
11/26/2013	370,784	\$41.51	-\$0.10	-0.24%
11/27/2013	345,790	\$42.12	\$0.61	1.47%
11/29/2013	893,334	\$39.37	-\$2.75	-6.53%
12/2/2013	952,934	\$38.87	-\$0.50	-1.27%
12/3/2013	803,592	\$39.80	\$0.93	2.39%
12/4/2013	488,334	\$38.94	-\$0.86	-2.16%
12/5/2013	373,476	\$38.92	-\$0.02	-0.05%
12/6/2013	487,227	\$38.56	-\$0.36	-0.92%
12/9/2013	724,054	\$38.43	-\$0.13	-0.34%
12/10/2013	472,723	\$38.00	-\$0.43	-1.12%
12/11/2013	542,173	\$36.80	-\$1.20	-3.16%
12/12/2013	1,003,396	\$36.03	-\$0.77	-2.09%
12/13/2013	561,235	\$36.02	-\$0.01	-0.03%
12/16/2013	442,456	\$36.00	-\$0.02	-0.06%
12/17/2013	394,875	\$35.95	-\$0.05	-0.14%
12/18/2013	738,509	\$36.45	\$0.50	1.39%
12/19/2013	648,143	\$36.63	\$0.18	0.49%
12/20/2013	1,165,895	\$35.94	-\$0.69	-1.88%
12/23/2013	538,544	\$36.08	\$0.14	0.39%
12/24/2013	257,175	\$36.12	\$0.04	0.11%
12/26/2013	287,983	\$35.85	-\$0.27	-0.75%
12/27/2013	273,322	\$36.13	\$0.28	0.78%
12/30/2013	393,940	\$36.47	\$0.34	0.94%
12/31/2013	495,280	\$36.60	\$0.13	0.36%
1/2/2014	407,803	\$36.25	-\$0.35	-0.96%
1/3/2014	403,673	\$36.29	\$0.04	0.11%
1/6/2014	375,201	\$35.94	-\$0.35	-0.96%
1/7/2014	606,070	\$35.78	-\$0.16	-0.45%
1/8/2014	634,587	\$35.75	-\$0.03	-0.08%
1/9/2014	1,413,810	\$36.36	\$0.61	1.71%
1/10/2014	1,623,455	\$37.35	\$0.99	2.72%
1/13/2014	683,239	\$37.04	-\$0.31	-0.83%
1/14/2014	391,733	\$37.84	\$0.80	2.16%
1/15/2014	632,780	\$38.66	\$0.82	2.17%
1/16/2014	628,364	\$37.97	-\$0.69	-1.78%
1/17/2014	441,545	\$37.32	-\$0.65	-1.71%
1/21/2014	548,712	\$37.11	-\$0.21	-0.56%
1/22/2014	385,984	\$36.77	-\$0.34	-0.92%
1/23/2014	713,984	\$35.91	-\$0.86	-2.34%
1/24/2014	851,752	\$34.94	-\$0.97	-2.70%
1/27/2014	496,457	\$34.37	-\$0.57	-1.63%
1/28/2014	728,193	\$34.84	\$0.47	1.37%
1/29/2014	432,013	\$34.53	-\$0.31	-0.89%
1/30/2014	547,258	\$34.96	\$0.43	1.25%
1/31/2014	701,862	\$34.94	-\$0.02	-0.06%
2/3/2014	827,506	\$33.80	-\$1.14	-3.26%
2/4/2014	1,236,888	\$34.37	\$0.57	1.69%
2/5/2014	1,774,825	\$34.95	\$0.58	1.69%

Date	Volume	Closing Price	Price Change	Return
2/6/2014	953,239	\$34.45	-\$0.50	-1.43%
2/7/2014	637,209	\$34.65	\$0.20	0.58%
2/10/2014	732,400	\$34.45	-\$0.20	-0.58%
2/11/2014	449,240	\$35.18	\$0.73	2.12%
2/12/2014	921,814	\$35.92	\$0.74	2.10%
2/13/2014	429,550	\$36.03	\$0.11	0.31%
2/14/2014	305,973	\$36.02	-\$0.01	-0.03%
2/18/2014	526,420	\$36.24	\$0.21	0.60%
2/19/2014	561,659	\$35.70	-\$0.53	-1.48%
2/20/2014	673,175	\$36.45	\$0.75	2.10%
2/21/2014	644,822	\$35.73	-\$0.72	-1.98%
2/24/2014	397,166	\$35.98	\$0.25	0.70%
2/25/2014	492,607	\$35.50	-\$0.48	-1.33%
2/26/2014	647,876	\$35.60	\$0.10	0.28%
2/27/2014	1,041,666	\$37.24	\$1.64	4.61%
2/28/2014	1,059,377	\$37.14	-\$0.10	-0.27%
3/3/2014	740,260	\$36.24	-\$0.90	-2.42%
3/4/2014	680,504	\$37.23	\$0.99	2.73%
3/5/2014	721,251	\$36.22	-\$1.01	-2.71%
3/6/2014	406,581	\$36.34	\$0.12	0.33%
3/7/2014	529,491	\$36.84	\$0.50	1.38%
3/10/2014	662,191	\$36.79	-\$0.05	-0.14%
3/11/2014	457,045	\$35.82	-\$0.97	-2.64%
3/12/2014	1,450,467	\$35.04	-\$0.78	-2.18%
3/13/2014	864,138	\$34.40	-\$0.64	-1.83%
3/14/2014	440,339	\$34.19	-\$0.21	-0.61%
3/17/2014	524,502	\$35.00	\$0.81	2.37%
3/18/2014	1,504,447	\$36.71	\$1.71	4.89%
3/19/2014	757,741	\$36.47	-\$0.24	-0.65%
3/20/2014	358,497	\$36.33	-\$0.14	-0.38%
3/21/2014	525,967	\$36.00	-\$0.33	-0.91%
3/24/2014	708,776	\$35.33	-\$0.67	-1.86%
3/25/2014	610,204	\$35.02	-\$0.31	-0.88%
3/26/2014	444,505	\$34.77	-\$0.25	-0.71%
3/27/2014	420,172	\$34.66	-\$0.11	-0.32%
3/28/2014	507,118	\$35.15	\$0.49	1.41%
3/31/2014	672,101	\$35.81	\$0.66	1.88%
4/1/2014	726,251	\$35.86	\$0.05	0.14%
4/2/2014	459,296	\$35.80	-\$0.06	-0.17%
4/3/2014	507,924	\$36.14	\$0.34	0.95%
4/4/2014	846,727	\$35.11	-\$1.03	-2.85%
4/7/2014	779,686	\$34.27	-\$0.84	-2.39%
4/8/2014	498,116	\$33.79	-\$0.48	-1.40%
4/9/2014	328,752	\$34.18	\$0.39	1.15%
4/10/2014	568,275	\$33.42	-\$0.76	-2.22%
4/11/2014	419,522	\$32.93	-\$0.49	-1.47%
4/14/2014	742,653	\$32.79	-\$0.14	-0.43%
4/15/2014	786,355	\$33.68	\$0.89	2.71%
4/16/2014	478,576	\$33.92	\$0.24	0.71%
4/17/2014	503,596	\$33.60	-\$0.32	-0.94%
4/21/2014	412,656	\$33.92	\$0.32	0.95%
4/22/2014	341,884	\$33.82	-\$0.10	-0.29%
4/23/2014	225,156	\$33.52	-\$0.30	-0.89%

Date	Volume	Closing Price	Price Change	Return
4/24/2014	437,914	\$33.36	-\$0.16	-0.48%
4/25/2014	756,189	\$32.23	-\$1.13	-3.39%
4/28/2014	472,431	\$32.36	\$0.13	0.40%
4/29/2014	335,383	\$32.70	\$0.34	1.05%
4/30/2014	351,883	\$32.78	\$0.08	0.24%
5/1/2014	594,526	\$33.48	\$0.70	2.14%
5/2/2014	595,338	\$33.62	\$0.14	0.42%
5/5/2014	461,307	\$33.20	-\$0.42	-1.25%
5/6/2014	1,481,920	\$32.85	-\$0.35	-1.05%
5/7/2014	1,678,390	\$31.04	-\$1.81	-5.51%
5/8/2014	922,596	\$30.89	-\$0.15	-0.48%
5/9/2014	813,698	\$31.65	\$0.76	2.46%
5/12/2014	736,483	\$32.38	\$0.73	2.31%
5/13/2014	624,283	\$32.16	-\$0.22	-0.68%
5/14/2014	506,775	\$31.57	-\$0.59	-1.83%
5/15/2014	694,691	\$31.19	-\$0.38	-1.20%
5/16/2014	416,290	\$31.27	\$0.08	0.26%
5/19/2014	436,226	\$31.50	\$0.23	0.72%
5/20/2014	649,966	\$31.45	-\$0.05	-0.14%
5/21/2014	605,092	\$31.79	\$0.34	1.08%
5/22/2014	513,836	\$32.02	\$0.23	0.72%
5/23/2014	259,262	\$32.25	\$0.23	0.72%
5/27/2014	308,044	\$32.57	\$0.32	0.99%
5/28/2014	422,995	\$32.65	\$0.08	0.25%
5/29/2014	537,523	\$33.13	\$0.48	1.47%
5/30/2014	424,949	\$33.12	-\$0.01	-0.03%
6/2/2014	356,859	\$33.02	-\$0.10	-0.30%
6/3/2014	491,137	\$33.07	\$0.05	0.15%
6/4/2014	427,293	\$33.55	\$0.48	1.45%
6/5/2014	733,935	\$34.37	\$0.82	2.44%
6/6/2014	393,604	\$34.07	-\$0.30	-0.87%
6/9/2014	324,216	\$34.06	-\$0.01	-0.03%
6/10/2014	209,953	\$33.90	-\$0.16	-0.47%
6/11/2014	401,839	\$33.62	-\$0.28	-0.83%
6/12/2014	448,726	\$33.49	-\$0.13	-0.39%
6/13/2014	221,408	\$33.46	-\$0.03	-0.09%
6/16/2014	336,280	\$33.36	-\$0.10	-0.30%
6/17/2014	412,441	\$33.64	\$0.28	0.84%
6/18/2014	270,440	\$34.06	\$0.42	1.25%
6/19/2014	332,071	\$34.48	\$0.42	1.23%
6/20/2014	556,158	\$34.55	\$0.07	0.20%
6/23/2014	636,883	\$34.00	-\$0.55	-1.59%
6/24/2014	1,196,857	\$34.20	\$0.20	0.59%
6/25/2014	398,731	\$34.70	\$0.50	1.46%
6/26/2014	404,927	\$34.45	-\$0.25	-0.72%
6/27/2014	621,135	\$34.93	\$0.48	1.39%
6/30/2014	483,176	\$34.86	-\$0.07	-0.20%
7/1/2014	654,903	\$35.53	\$0.67	1.92%
7/2/2014	691,916	\$34.54	-\$0.99	-2.79%
7/3/2014	433,372	\$34.99	\$0.45	1.30%
7/7/2014	383,501	\$34.22	-\$0.77	-2.20%
7/8/2014	328,418	\$33.95	-\$0.27	-0.79%
7/9/2014	272,333	\$33.90	-\$0.05	-0.15%

Date	Volume	Closing Price	Price Change	Return
7/10/2014	397,534	\$33.49	-\$0.41	-1.21%
7/11/2014	187,574	\$33.75	\$0.26	0.78%
7/14/2014	455,855	\$33.88	\$0.13	0.39%
7/15/2014	517,596	\$33.28	-\$0.60	-1.77%
7/16/2014	519,787	\$32.87	-\$0.41	-1.23%
7/17/2014	472,953	\$32.56	-\$0.31	-0.94%
7/18/2014	508,025	\$33.00	\$0.44	1.35%
7/21/2014	361,627	\$32.68	-\$0.32	-0.97%
7/22/2014	406,970	\$32.97	\$0.29	0.89%
7/23/2014	226,902	\$32.68	-\$0.29	-0.88%
7/24/2014	283,848	\$32.55	-\$0.13	-0.40%
7/25/2014	325,245	\$32.13	-\$0.42	-1.29%
7/28/2014	242,155	\$32.28	\$0.15	0.47%
7/29/2014	1,125,931	\$31.33	-\$0.95	-2.94%
7/30/2014	485,559	\$31.40	\$0.07	0.22%
7/31/2014	966,441	\$32.50	\$1.10	3.50%
8/1/2014	677,662	\$32.25	-\$0.25	-0.77%
8/4/2014	814,466	\$32.83	\$0.58	1.80%
8/5/2014	457,862	\$33.06	\$0.23	0.70%
8/6/2014	1,308,328	\$32.57	-\$0.49	-1.48%
8/7/2014	10,996,816	\$22.74	-\$9.83	-30.18%
8/8/2014	4,008,816	\$23.27	\$0.53	2.33%
8/11/2014	2,651,914	\$23.04	-\$0.23	-0.99%
8/12/2014	1,619,418	\$23.20	\$0.16	0.69%
8/13/2014	1,377,556	\$23.33	\$0.13	0.56%
8/14/2014	1,124,813	\$23.42	\$0.09	0.36%
8/15/2014	1,069,051	\$23.74	\$0.32	1.39%
8/18/2014	877,121	\$23.85	\$0.11	0.46%
8/19/2014	1,112,713	\$24.30	\$0.45	1.89%
8/20/2014	1,206,065	\$24.61	\$0.31	1.26%
8/21/2014	779,354	\$24.33	-\$0.28	-1.12%
8/22/2014	551,834	\$24.36	\$0.03	0.12%
8/25/2014	796,541	\$24.27	-\$0.09	-0.39%
8/26/2014	622,012	\$24.70	\$0.43	1.79%
8/27/2014	478,119	\$24.65	-\$0.05	-0.20%
8/28/2014	637,108	\$24.74	\$0.09	0.37%
8/29/2014	718,528	\$25.00	\$0.26	1.05%
9/2/2014	1,015,302	\$24.90	-\$0.10	-0.40%
9/3/2014	799,955	\$25.25	\$0.35	1.41%
9/4/2014	1,068,940	\$25.16	-\$0.09	-0.36%
9/5/2014	754,654	\$25.42	\$0.26	1.03%
9/8/2014	912,593	\$25.22	-\$0.21	-0.81%
9/9/2014	1,153,510	\$25.36	\$0.14	0.56%
9/10/2014	780,328	\$25.72	\$0.36	1.44%
9/11/2014	899,220	\$25.94	\$0.22	0.84%
9/12/2014	833,607	\$26.02	\$0.09	0.33%
9/15/2014	555,732	\$26.01	-\$0.01	-0.04%
9/16/2014	777,840	\$26.28	\$0.27	1.04%
9/17/2014	619,227	\$26.15	-\$0.13	-0.49%
9/18/2014	657,664	\$26.40	\$0.25	0.96%
9/19/2014	903,664	\$26.14	-\$0.26	-0.98%
9/22/2014	4,424,000	\$27.74	\$1.60	6.12%
9/23/2014	2,229,035	\$26.61	-\$1.13	-4.07%

Date	Volume	Closing Price	Price Change	Return
9/24/2014	921,695	\$26.86	\$0.25	0.92%
9/25/2014	976,638	\$26.50	-\$0.36	-1.32%
9/26/2014	910,980	\$26.83	\$0.32	1.23%
9/29/2014	1,369,056	\$27.41	\$0.58	2.16%
9/30/2014	1,111,060	\$26.73	-\$0.68	-2.46%
10/1/2014	979,873	\$26.50	-\$0.23	-0.86%
10/2/2014	685,061	\$26.66	\$0.16	0.60%
10/3/2014	515,196	\$26.99	\$0.32	1.22%
10/6/2014	812,971	\$27.10	\$0.11	0.41%
10/7/2014	653,983	\$26.49	-\$0.61	-2.23%
10/8/2014	830,600	\$26.89	\$0.40	1.51%
10/9/2014	657,453	\$26.32	-\$0.57	-2.12%
10/10/2014	949,014	\$26.04	-\$0.29	-1.08%
10/13/2014	767,840	\$26.05	\$0.02	0.06%
10/14/2014	786,122	\$26.03	-\$0.02	-0.08%
10/15/2014	1,113,250	\$25.78	-\$0.26	-0.98%
10/16/2014	890,088	\$25.49	-\$0.29	-1.11%
10/17/2014	864,756	\$25.71	\$0.22	0.84%
10/20/2014	672,191	\$26.26	\$0.56	2.16%
10/21/2014	630,556	\$26.51	\$0.25	0.95%
10/22/2014	583,293	\$26.02	-\$0.49	-1.85%
10/23/2014	554,958	\$26.36	\$0.34	1.29%
10/24/2014	347,876	\$26.59	\$0.23	0.89%
10/27/2014	704,727	\$26.29	-\$0.30	-1.13%
10/28/2014	1,094,063	\$26.28	-\$0.01	-0.04%
10/29/2014	802,762	\$26.13	-\$0.15	-0.57%
10/30/2014	924,884	\$26.40	\$0.27	1.03%
10/31/2014	873,744	\$27.18	\$0.78	2.95%
11/3/2014	751,226	\$27.21	\$0.03	0.11%
11/4/2014	438,669	\$27.18	-\$0.03	-0.11%

Thoratec Corp. Volume Analysis

Date Weekly Volume Dollar Volume of Trades Volume as % Shares Outstan 5/20/2011 6,175,394 \$215,044,084 10.79% 5/27/2011 5,057,302 \$174,142,731 8.84% 6/3/2011 2,632,654 \$89,020,667 4.60% 6/10/2011 3,319,765 \$104,900,471 5.80% 6/17/2011 4,229,230 \$127,772,866 7.39% 6/24/2011 3,582,205 \$110,480,116 6.26% 7/1/2011 2,761,979 \$89,583,420 4.83% 7/8/2011 2,713,263 \$94,792,520 4.74% 7/15/2011 3,876,258 \$136,355,850 6.78% 7/22/2011 3,563,236 \$128,840,899 6.23% 7/29/2011 2,893,417 \$99,239,366 5.06% 8/5/2011 9,660,866 \$317,331,435 16.17% 8/19/2011 3,716,684 \$116,691,146 6.22% 8/26/2011 4,816,248 \$152,758,576 8.06% 9/2/2011 2,899,492 \$97,223,944 4.85% <	
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10/28/2011 2,925,980 \$108,350,072 4.90%	
11/4/2011 8,741,128 \$269,540,954 14.63%	
11/11/2011 5,523,343 \$163,016,953 9.22%	
11/18/2011 4,359,335 \$127,634,132 7.27% 11/25/2011 2,196,444 \$62,350,024 3.67%	
11/2/3/2011 2,190,444 \$02,330,024 5.07% 12/2/2011 3,310,610 \$99,291,889 5.52%	
12/9/2011 4,355,264 \$135,436,891 7.27%	
12/3/2011 4,333,204 \$133,430,691 7.27% 12/16/2011 3,191,968 \$96,733,850 5.33%	
12/10/2011 3,151,700 \$90,733,030 3.33% 12/23/2011 2,619,653 \$83,884,390 4.37%	
12/23/2011 2,019,033 \$63,664,390 4.37% 12/30/2011 1,520,382 \$50,727,511 2.54%	
1/6/2012 4,199,201 \$129,616,125 7.01%	
1/13/2012 4,151,285 \$122,430,822 6.93%	
1/20/2012 2,325,122 \$68,700,601 3.88%	
1/27/2012 3,074,726 \$94,756,104 5.13%	
2/3/2012 4,012,107 \$121,382,562 6.69%	
2/10/2012 8,083,206 \$270,768,867 13.49%	
2/17/2012 3,671,582 \$128,778,623 6.13%	
2/24/2012 1,819,057 \$63,755,482 3.11%	
3/2/2012 2,975,812 \$103,820,280 5.09%	
3/9/2012 3,169,755 \$106,699,444 5.42%	
3/16/2012 3,201,198 \$108,942,178 5.48%	
3/23/2012 1,869,013 \$63,804,759 3.20%	
3/30/2012 2,709,848 \$92,277,599 4.64%	
4/5/2012 7,277,235 \$240,366,289 12.45%	
4/13/2012 3,812,031 \$123,466,609 6.52%	
4/20/2012 4,818,071 \$161,231,192 8.25%	
4/27/2012 5,683,424 \$193,717,482 9.73%	
5/4/2012 5,936,310 \$203,274,120 10.16%	
5/11/2012 3,891,825 \$127,887,802 6.63%	
5/18/2012 4,641,567 \$146,592,447 7.91%	
5/25/2012 2,852,032 \$89,542,647 4.86%	

Share Turnover	
Calendar Days	1,183
Time Period (years)	3.24
Shares Out At End of Class Period	56,800,000
Total Volume in Class Period	550,993,888
Annualized Share Turnover	299.5%

Shares Outstanding	
2/23/2011	58,655,000
4/20/2011	57,206,000
5/3/2011	57,209,000
8/4/2011	59,742,000
11/7/2011	59,928,000
2/21/2012	58,431,000
5/8/2012	58,670,000
8/2/2012	58,823,000
11/2/2012	58,757,000
2/20/2013	57,605,000
5/3/2013	57,330,000
8/1/2013	57,528,000
10/31/2013	56,971,000
2/18/2014	56,778,000
4/10/2014	56,902,000
5/8/2014	56,800,000
8/7/2014	56,300,000
11/6/2014	55,000,000
2/19/2015	53,700,000

Thoratec Corp. Volume Analysis

Date	Weekly	Dollar Volume of	Volume as % of
2	Volume	Trades	Shares Outstanding
6/1/2012	2,591,580	\$79,445,237	4.42%
6/8/2012	3,587,819	\$112,085,329	6.12%
6/15/2012	2,436,591	\$76,702,672	4.15%
6/22/2012	2,518,689	\$82,696,419	4.29%
6/29/2012	1,637,099	\$53,325,441	2.79%
7/6/2012	1,308,977	\$44,378,723	2.23%
7/13/2012	2,888,336	\$97,997,340	4.92%
7/20/2012	3,664,681	\$130,022,109	6.25%
7/27/2012	2,906,743	\$99,367,214	4.95%
8/3/2012	3,059,071	\$100,198,173	5.20%
8/10/2012	1,958,305	\$63,186,178	3.33%
8/17/2012	2,267,016	\$71,345,317	3.85%
8/24/2012	1,642,212	\$52,533,856	2.79%
8/31/2012	1,727,140	\$57,617,827	2.94%
9/7/2012	2,292,892	\$80,299,069	3.90%
9/14/2012	2,819,718	\$95,718,925	4.79%
9/21/2012	1,576,172	\$54,814,359	2.68%
9/28/2012	1,469,417	\$50,824,742	2.50%
10/5/2012	2,382,049	\$84,855,919	4.05%
10/12/2012	2,185,759	\$75,560,928	3.72%
10/19/2012	2,170,731	\$75,686,940	3.69%
10/26/2012	1,613,161	\$56,684,640	2.74%
11/2/2012	2,208,553	\$79,893,957	3.76%
11/9/2012	1,887,871	\$66,595,312	3.21%
11/16/2012	1,887,883	\$65,469,065	3.21%
11/23/2012	3,863,201	\$139,239,979	6.57%
11/30/2012	3,922,931	\$147,374,098	6.68%
12/7/2012	2,767,353	\$103,594,008	4.71%
12/14/2012	3,719,320	\$143,744,689	6.33%
12/21/2012	2,186,001	\$83,019,070	3.72%
12/28/2012	1,117,531	\$41,764,364	1.90%
1/4/2013	2,614,521	\$97,482,662	4.45%
1/11/2013	2,615,758	\$97,099,436	4.45%
1/18/2013	3,156,746	\$115,652,129	5.37%
1/25/2013	2,277,013	\$83,749,411	3.88%
2/1/2013	2,965,406	\$109,275,882	5.05%
2/8/2013	5,665,018	\$207,760,728	9.64%
2/15/2013	3,394,470	\$123,279,457	5.78%
2/22/2013	1,962,777	\$70,720,410	3.41%
3/1/2013	3,230,925	\$114,436,792	5.61%
3/8/2013	2,286,615	\$81,382,150	3.97%
3/15/2013	2,097,092	\$74,912,122	3.64%
3/22/2013	1,975,804	\$71,120,533	3.43%
3/28/2013	2,226,183	\$81,418,106	3.86%
4/5/2013	2,258,616	\$83,350,106	3.92%
4/12/2013	2,034,923	\$74,085,520	3.53%
4/19/2013	2,243,040	\$81,096,580	3.89%
4/26/2013	1,905,283	\$69,617,031	3.31%
5/3/2013	8,855,539	\$302,812,313	15.45%
5/10/2013	4,766,060	\$158,736,637	8.31%
5/17/2013	4,150,151	\$138,317,737	7.24%
5/24/2013	4,365,860	\$137,053,112	7.62%
5/31/2013	1,859,479	\$58,145,462	3.24%
6/7/2013	3,340,046	\$101,629,622	5.83%

Thoratec Corp. Volume Analysis

Date	Weekly Volume	Dollar Volume of Trades	Volume as % of Shares Outstanding
6/14/2013	2,267,680	\$71,900,388	3.96%
6/21/2013	3,103,252	\$98,225,637	5.41%
6/28/2013	9,710,446	\$302,939,358	16.94%
7/5/2013	2,952,718	\$94,617,193	5.15%
7/12/2013	4,508,056	\$141,198,881	7.86%
7/19/2013	3,663,637	\$117,300,505	6.39%
7/26/2013	2,489,751	\$81,035,644	4.34%
8/2/2013	5,400,244	\$186,777,048	9.39%
8/9/2013	3,636,644	\$132,958,525	6.32%
8/16/2013	2,871,325	\$104,052,185	4.99%
8/23/2013	2,064,436	\$74,181,854	3.59%
8/30/2013	1,890,610	\$67,988,685	3.29%
9/6/2013	1,954,113	\$69,800,639	3.40%
9/13/2013	1,994,132	\$72,727,381	3.47%
9/20/2013	2,436,008	\$91,074,169	4.23%
9/27/2013	2,341,016	\$86,621,304	4.07%
10/4/2013	3,110,704	\$118,148,580	5.41%
10/11/2013	2,504,975	\$94,968,007	4.35%
10/18/2013	2,785,358	\$108,167,369	4.84%
10/25/2013	1,885,770	\$74,321,576	3.28%
11/1/2013	6,795,447	\$283,028,302	11.93%
11/8/2013	3,893,497	\$161,740,281	6.83%
11/15/2013	2,122,932	\$90,245,301	3.73%
11/22/2013	2,124,373	\$89,038,572	3.73%
11/29/2013	2,030,243	\$82,616,618	3.56%
12/6/2013	3,105,563	\$121,362,391	5.45%
12/13/2013	3,303,581	\$122,108,878	5.80%
12/20/2013	3,389,878	\$122,686,570	5.95%
12/27/2013	1,357,024	\$48,919,143	2.38%
1/3/2014	1,700,696	\$61,926,392	2.99%
1/10/2014	4,653,123	\$169,898,570	8.17%
1/17/2014	2,777,661	\$104,931,065	4.88%
1/24/2014	2,500,432	\$89,954,714	4.39%
1/31/2014	2,905,783	\$101,006,078	5.10%
2/7/2014	5,429,667	\$187,430,053	9.53%
2/14/2014	2,838,977	\$100,644,836	4.98%
2/21/2014	2,406,076	\$86,702,774	4.24%
2/28/2014	3,638,692	\$132,978,870	6.41%
3/7/2014	3,078,087	\$112,567,500	5.42%
3/14/2014	3,874,180	\$136,339,260	6.82%
3/21/2014	3,671,154	\$133,179,642	6.47%
3/28/2014	2,690,775	\$94,254,198	4.74%
4/4/2014	3,212,299	\$114,639,053	5.66%
4/11/2014	2,594,351	\$87,594,532	4.56%
4/17/2014	2,511,180	\$83,990,152	4.41%
4/25/2014 5/2/2014	2,173,799	\$72,087,820 \$77,709,610	3.82% 4.13%
5/2/2014	2,349,561 5,357,911		9.43%
5/9/2014 5/16/2014	2,978,522	\$170,346,222 \$94,607,948	5.24%
5/23/2014	2,464,382		4.34%
5/30/2014	1,693,511	\$78,230,471 \$55,726,228	2.98%
6/6/2014	2,402,828	\$80,996,499	4.23%
6/13/2014	1,606,142	\$54,106,176	2.83%
6/20/2014	1,907,390	\$64,969,069	3.36%
0/20/2014	1,507,590	ψ υ 1 ,202,002	3.3070

Thoratec Corp. Volume Analysis

Date	Weekly Volume	Dollar Volume of Trades	Volume as % of Shares Outstanding
6/27/2014	3,258,533	\$112,068,478	5.74%
7/3/2014	2,263,367	\$79,174,684	3.98%
7/11/2014	1,569,360	\$53,149,320	2.76%
7/18/2014	2,474,216	\$81,919,536	4.36%
7/25/2014	1,604,592	\$52,340,303	2.82%
8/1/2014	3,497,748	\$111,602,666	6.16%
Average	3,229,434	\$110,075,775	5.6%
Minimum	1,117,531	\$41,764,364	1.9%
Maximum	9,710,446	\$317,331,435	16.9%
Total	542,544,875	\$18,492,730,139	

Exhibit 5A

Thoratec Corp.

Number of Analyst Reports by Company

Source: Thomson Reuters Eikon, Thomson Reuters Knowledge, Bloomberg

Abridged Search with Company Name as Primary Ticker Only

Number	Analyst Name	Reports
1	Credit Suisse - North America	66
2	Barclays	62
3	Thomson Reuters StreetEvents	58
4	Wells Fargo Securities, LLC	38
5	Oppenheimer & Co., Inc.	37
6	GlobalData	37
7	JPMorgan	37
8	Piper Jaffray	31
9	Canaccord Genuity	28
10	Leerink Partners LLC	24
11	Morningstar, Inc.	22
12	Barrington Research Associates	20
13	MarketLine	19
14	Wedbush Securities Inc.	18
15	UBS Equities	17
16	Northland Securities	16
17	Rodman & Renshaw, Inc Pre September 2012	16
18	Wright Reports	16
19	Madison Williams	13
20	ThinkEquity LLC	13
21	Sadif Analytics	12
22	William Blair & Company	12
23	WJB Capital Group, Inc (Hist)	12
24	Wunderlich Securities	11
25	Morgan Keegan & Company, Inc.	6
26	BTIG	4
27	Morningstar Credit Research	2
28	Validea	2
29	Disclosure Insight	1
30	Ladenburg Thalmann & Co. Inc.	1
31	Life Science Analytics	1
32	Sadif Analytics Prime	1
33	Streetwise Reports	1
34	Summer Street Research	1
	Total Analyst Reports in Class Period	655

Thoratec Corp.

List of Analyst Reports

Date	Contributor	Title
5/11/2011	Barclays	Thoratec Corp.: Docs Have Noticed PHP; Maybe It's Time Investors Did, Too
5/11/2011	Morningstar Credit Research	With a new entrant close to disrupting its key niche, Thoratec is investing in its pipeline. Updated Forecasts and Estimates from 11 May 2011
5/11/2011	WJB Capital Group, Inc (Hist)	THOR: Meet the TETS, Meet the TETS, Step Right Up and Greet the TETS
5/12/2011	Morningstar Credit Research	With a new entrant close to disrupting its key niche, Thoratec is investing in its pipeline. Updated Forecasts and Estimates from 12 May 2011
5/12/2011	Morningstar, Inc.	With a new entrant close to disrupting its key niche, Thoratec is investing in its pipeline Updated Forecasts and Estimates from 12 May 2011
5/12/2011	Morningstar, Inc.	With a new entrant close to disrupting its key niche, Thoratec is investing in its pipeline Updated Forecasts and Estimates from 11 May 2011
5/13/2011	Rodman & Renshaw, Inc Pre September 2012	The race for fully-implantable VAD's is on
5/17/2011	Oppenheimer & Co., Inc.	Sizing Up the LVAD Market
5/17/2011	Oppenheimer & Co., Inc.	Focusing on Exclusive Destination Therapy Opportunity; Initiate at Outperform
5/17/2011	WJB Capital Group, Inc (Hist)	A Couple of VAD Market Data Points: If You Hear Noise, You Won't Get a Headache
5/26/2011	WJB Capital Group, Inc (Hist)	HTWR, THOR: A VAD Dinner Serves Up More Food for Thought
6/2/2011	Madison Williams	Management Remains Upbeat on Short- and Long-term Opportunities
6/3/2011	Rodman & Renshaw, Inc Pre September 2012	RODMAN MORNING SUMMARY
6/3/2011	Rodman & Renshaw, Inc Pre September 2012	Notes from our Physician Dinner Event
6/7/2011	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
6/9/2011	UBS Equities	First Read: Thoratec "CFO stepping down" (Buy) Jashnani
6/10/2011	Canaccord Genuity	THOR - CFO resigns; maintain HOLD
6/10/2011	Madison Williams	Management Confirms CFO Departing for Personal Reasons (June 10, 2011)
6/10/2011	Oppenheimer & Co., Inc.	Afternoon Research Summary
6/10/2011	Rodman & Renshaw, Inc Pre September 2012	THOR CFO Resignation
6/10/2011	Sadif Analytics	Thoratec Corporation: Summary StockMarks Due Dilligence Report
6/10/2011	Wunderlich Securities	AM Call Summary - 2011-06-10 08:00:14

Thoratec Corp.

List of Analyst Reports

Date	Contributor	Title
6/10/2011	Wunderlich Securities	Initiating Coverage With a Hold - Competition Still the Concern
6/13/2011	Barclays	Thoratec Corp.: CFO Departure Gives Pause, but Not Alarm
6/13/2011	WJB Capital Group, Inc (Hist)	HTWR, THOR: ASAIO Provides a VAD Technology Update
6/16/2011	Morgan Keegan & Company, Inc.	THOR: Initiating Coverage
6/16/2011	Morgan Keegan & Company, Inc.	THOR: Experience is Meaningful in the Market
6/20/2011	Leerink Partners LLC	Positive LVAD Market Outlook Highlighted on Physician Call
6/22/2011	MarketLine	Thoratec Corporation
7/5/2011	MarketLine	Thoratec Corporation
7/6/2011	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
7/8/2011	Madison Williams	Recent Share Price Strength Could Signal Improving Street Perception
7/10/2011	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
7/11/2011	MarketLine	Thoratec Corporation
7/18/2011	Credit Suisse - North America	HTWR: Initiating at Neutral
7/18/2011	Credit Suisse - North America	THOR: Regaining Momenteum: Initiating at Outperform
7/19/2011	Credit Suisse - North America	The Healthcare Daily: 07/19/11
7/19/2011	Madison Williams	JNJ Comments on LVAD Market Could be Positive for THOR
7/20/2011	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
7/21/2011	Madison Williams	Physician Commentaries Reaffirm our Bullish Stance
7/22/2011	WJB Capital Group, Inc (Hist)	HTWR, THOR: Another Doc Dinner Provides Insight, Reaffirms Our Thoughts
7/25/2011	JPMorgan	Thoratec Corp. : Adjusting Estimates
7/27/2011	Madison Williams	2Q11 Preview: We Expect THOR to Exceed Consensus Revenue Estimates
7/29/2011	Credit Suisse - North America	THOR: LVAD Survey Indicates Q2 Gains
8/1/2011	Wedbush Securities Inc.	Q2:2011 Preview; Raising FV to \$27 from \$26
8/2/2011	Madison Williams	Our Confidence Level Improving on Upcoming 2Q11 Results
8/3/2011	Barrington Research Associates	Mid-Day Notes (8-3-11)-CCO,GPX,OSUR,PODD,RST,SRDX,THOR,TWX
8/3/2011	Credit Suisse - North America	THOR: Solid Q2 indicates continuing momentum
8/3/2011	UBS Equities	Thoratec "Market development clicking" (Buy) Jashnani
8/4/2011	Barrington Research Associates	Mid-Day Research (8-4-11) - DISCA, GPX, OSUR, SRDX, THOR
8/4/2011	Canaccord Genuity	Q2 upside as expected; maintain HOLD, raise target to \$38
8/4/2011	JPMorgan	Thoratec Corp. : Strong 2Q as DT Continues to Build Steam

Thoratec Corp.

List of Analyst Reports

Date	Contributor	Title
8/4/2011	Leerink Partners LLC	2Q11: Long-Term Thesis of Accelerating DT Market Growth Intact
8/4/2011	Madison Williams	2Q11: As Expected THOR Signals Accelerating LVAD Adoption; More Upside Ahead
8/4/2011	Morgan Keegan & Company, Inc.	THOR: Solid Quarter, but Valuation Fully Accounted for in Current Stock Price
8/4/2011	Morningstar, Inc.	Thoratec Delivers Accelerated Growth in Wake of Competitive Concerns. See Updated Analyst Note from
8/4/2011	ivioriningstar, mc.	04 Aug 2011
8/4/2011	Morningstar, Inc.	Thoratec Delivers Accelerated Growth in Wake of Competitive Concerns. Updated Forecasts and Estimates
8/4/2011	ivioriningstar, mc.	from 04 Aug 2011
8/4/2011	Oppenheimer & Co., Inc.	Strong 2Q on Market Growth, Some Share Pickup
8/4/2011	Piper Jaffray	Strong Q2 Results But Sustainability Uncertain
8/4/2011	Rodman & Renshaw, Inc Pre September 2012	Strong quarterOutlook for HeartMate II significantly brightening upLandscape is shifting
8/4/2011	Wedbush Securities Inc.	Upgrading to NEUTRAL from UNDERPERFORM and Raising FV to \$33 from \$27; Optimistic About
		H2:2011 but Concerns Over 2012 Remain
8/4/2011	Wells Fargo Securities, LLC	THOR: Q2 OutperformedOutlook Still RobustRaising Estimates
8/4/2011	WJB Capital Group, Inc (Hist)	THOR: A Powerful Q2 Deserves Credit, But, As We Look Ahead, Does It Matter?
8/4/2011	Wunderlich Securities	Very Impressive Q2 Performance on Share Gains and Market Rebound
8/5/2011	Barrington Research Associates	Thoratec Corp THOR Strong Q2 Results; Reiterating OUTPERFORM
8/16/2011	Life Science Analytics	Thoratec Corporation-Company Report
8/17/2011	Madison Williams	US HM II Implant Volume for 3Q11 Appears on Track to Exceed Expectations
8/25/2011	GlobalData	Thoratec Corporation (THOR) - Medical Equipment - Deals and Alliances Profile
9/8/2011	Rodman & Renshaw, Inc Pre September 2012	Field checks on the LVAD space
9/9/2011	WJB Capital Group, Inc (Hist)	HTWR, THOR: MVAD GLP Studies Complete; Will the Noise Start Up Again?
9/12/2011	Credit Suisse - North America	LVAD Market - Highlights from ISRBP Meeting
9/15/2011	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
9/16/2011	Madison Williams	Upcoming HFSA Annual Conference Should Be Incrementally Positive for Thoratec
9/16/2011	Sadif Analytics	Thoratec Corporation: Summary StockMarks Due Dilligence Report
9/20/2011	Madison Williams	Thoratec's Pipeline Products Appear Promising
9/20/2011	WJB Capital Group, Inc (Hist)	THOR: Investor Breakfast and Technology Fair Give Us More Confidence in THOR's Pipeline

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9/21/2011	Leerink Partners LLC	HFSA 2011: Steady Progress Evident in LVAD Market Development Efforts
9/21/2011	Madison Williams	Thoratec Showcases Its Pipeline; Overall Progress Looks Better than Expected
9/22/2011	Piper Jaffray	Interest in VAD Market Remains Strong; US Market Development is Key
9/23/2011	Madison Williams	A Buying Opportunity
9/27/2011	Disclosure Insight	Thoratec Corp Medium Risk - Positive Bias
10/2/2011	Credit Suisse - North America	HTWR: EACTS update along expected lines
10/2/2011	Oppenheimer & Co., Inc.	HTWR-EACTS Update
10/3/2011	WJB Capital Group, Inc (Hist)	HTWR, THOR: EACTS Data Demonstrates Improving Safety Profile of HTWR's HVAD
10/4/2011	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
10/5/2011	Credit Suisse - North America	LVADs - Incremental improvements could spur adoption
10/9/2011	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
10/10/2011	Credit Suisse - North America	LVAD Survey - Q3 implants seem robust
10/11/2011	Morgan Keegan & Company, Inc.	Medical Devices Q3 Preview: ABT, ATRC, BSX, DXCM, EW, HTWR, JNJ, MDT, STJ, THOR
10/14/2011	JPMorgan	Thoratec Corp. : Adjusting Estimates for HVAD Delay
10/17/2011	WJB Capital Group, Inc (Hist)	HTWR, THOR: Revisiting Our Thesis with Clear Eyes - And Still Buying HTWR
10/19/2011	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
10/21/2011	Credit Suisse - North America	LVAD Estimate Change - Adjusting estimates to account for HVAD panel delay
10/31/2011	Wedbush Securities Inc.	Q3:2011 Preview: Expect Hit from Summer Seasonality; Reiterate NEUTRAL
11/1/2011	Barclays	Barclays Capital THOR September Quarter Revenue & EPS Analyzer: THOR3QAnalyzer
11/1/2011	Barclays	Barclays Capital THOR September Quarter Revenue & EPS Analyzer
11/1/2011	Credit Suisse - North America	THOR: Bumpy Q3 could cause near term weakness
11/1/2011	Morningstar, Inc.	Thoratec Trims Sales Outlook. See Updated Analyst Note from 02 Nov 2011
11/1/2011	Wedbush Securities Inc.	Q3:11 Revenues Disappoint; FY:11 Rev Guidance Lowered; Reiterate NEUTRAL and Dropping FV to \$31 from \$33
11/1/2011	WJB Capital Group, Inc (Hist)	THOR: Points to Ponder for Tonight's Print
11/2/2011	Barclays	Thoratec Corp.: Guidance in Focus - Remain Constructive
11/2/2011	Barrington Research Associates	Thoratec Corp. THOR Reiterating OUTPERFORM and \$36 PT
11/2/2011	Canaccord Genuity	Q3 raises questions, but we remain bullish about long-term market growth; maintain HOLD, lower price target to \$34
11/2/2011	Credit Suisse - North America	LVADs - Ex-US trends instructive
11/2/2011	JPMorgan	Thoratec Corp. : Mixed 3Q and Cautious Market Commentary Raise Some Eyebrows; Staying on the Sidelines
11/2/2011	Leerink Partners LLC	3Q: A More Dramatic Seasonality Impact Pushes '11 Sales Outlook Slightly Lower
11/2/2011	Morgan Keegan & Company, Inc.	THOR: Troubled Quarter not Helped by Expectations that Were Too High

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11/2/2011	Morningstar, Inc.	Thoratec Trims Sales Outlook. See Updated Analyst Note from 02 Nov 2011
11/2/2011	Oppenheimer & Co., Inc.	Some Mkt Growing Pains, but Trends Pointing Right
11/2/2011	Piper Jaffray	Slow Summer; Cautious Outlook
11/2/2011	Rodman & Renshaw, Inc Pre September 2012	Confusing quarterField checks yielded an incorrect signal for the quarter
11/2/2011	UBS Equities	Thoratec "Where to from here (mkt models included)" (Buy) Jashnani
11/2/2011	Wells Fargo Securities, LLC	THOR: Disappointing QuarterLowering Ests And Valuation Range
11/2/2011	WJB Capital Group, Inc (Hist)	THOR: Lower Guidance Disappoints, but We Believe the Market Is Still Healthy
11/2/2011	Wunderlich Securities	Soft Q3 Revenue Performance and Lower Revenue Guidance Raises Concerns
11/11/2011	Barclays	Thoratec Corp.: September Quarter 10Q Review
11/17/2011	UBS Equities	Thoratec "Update from management" (Buy) Jashnani
11/29/2011	Piper Jaffray	Highlights From The 23rd Annual Piper Jaffray Healthcare Conference
12/5/2011	Credit Suisse - North America	THOR: Large Shareholder Urges Sale of Company
12/5/2011	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
12/5/2011	UBS Equities	Thoratec "Do I hear ~\$2B?" (Buy) Jashnani
12/6/2011	JPMorgan	Cardiovascular Devices : Adjusting VAD Market Estimates
12/14/2011	Thomson Reuters StreetEvents	THOR - Event Transcript of Thoratec Corp conference call, Dec. 13, 2011 / 10:15am ET
12/28/2011	GlobalData	Thoratec Corporation (THOR) - Medical Equipment - Deals and Alliances Profile
1/2/2012	Sadif Analytics	Thoratec Corporation: Summary Due Dilligence Report
1/3/2012	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
1/4/2012	UBS Equities	Thoratec "Downgrade to Neutral" (Neutral) Jashnani
1/5/2012	Rodman & Renshaw, Inc Pre September 2012	Waiting for HTWR panel
1/6/2012	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
1/8/2012	Wells Fargo Securities, LLC	THOR: Downgrading To Market Perform
1/9/2012	Canaccord Genuity	Q4 preliminary LVAD market data decent; maintain HOLD, \$34 target
1/9/2012	Credit Suisse - North America	HTWR: In line Q4 with good pipeline update
1/9/2012	Wells Fargo Securities, LLC	THOR: Correction To, THOR: Downgrading To Market Perform
1/10/2012	Credit Suisse - North America	LVAD Market - LVAD Survey: Expect 14% US Unit Growth
1/10/2012	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
1/10/2012	Thomson Reuters StreetEvents	THOR - Event Transcript of Thoratec Corp conference call, Jan. 09, 2012 / 8:00am ET
1/12/2012	Barclays	THOR Receives Warning Letter; No Material Financial Impact Expected
1/12/2012	Canaccord Genuity	FDA Warning Letter probably not material, but maintain HOLD, \$34 target
1/12/2012	Credit Suisse - North America	THOR: Warning letter does not appear to be disruptive

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1/12/2012	Rodman & Renshaw, Inc Pre September 2012	Issues related to late filing of MDR's seem benign
1/13/2012	Credit Suisse - North America	The Healthcare Daily: 01/13/12
1/24/2012	Rodman & Renshaw, Inc Pre September 2012	Bad Oeynhausen experience with HTWR device suggests up to 8% thrombosis / thromboembolic rate
1/30/2012	Canaccord Genuity	Increasing reports of pump thrombosis issues with HM-II; stay on sidelines at HOLD, reduce price target to \$31
1/31/2012	Rodman & Renshaw, Inc Pre September 2012	Timing of thrombus noise in HM - II is curiousField checks don't lend support to claims.
1/31/2012	Wedbush Securities Inc.	Q4:2011 Preview; Adjusting 2012 Estimates To Reflect HVAD Launch in Q3; Reiterate NEUTRAL
2/2/2012	ThinkEquity LLC	THOR: Initiating Coverage with a Buy Rating and \$50 Price Target
2/5/2012	Leerink Partners LLC	LVAD Survey Suggests HeartMate II Thrombus Concerns May Be Overdone
2/5/2012	Oppenheimer & Co., Inc.	Morning Research Summary
2/5/2012	Oppenheimer & Co., Inc.	A Moving Target
2/6/2012	Canaccord Genuity	Q4 LVAD survey results and analysis: THOR (Hold) and HTWR (Buy)
2/7/2012	Barclays	Barclays Capital THOR December Quarter Revenue & EPS Analyzer
2/7/2012	Barclays	Barclays Capital THOR December Quarter Revenue & EPS Analyzer: THOR4QAnalyzer
2/8/2012	Oppenheimer & Co., Inc.	Morning Research Summary
2/8/2012	Thomson Reuters StreetEvents	THOR - Event Brief of Thoratec Corp conference call, Feb. 08, 2012 / 1:30pm ET
2/8/2012	Thomson Reuters StreetEvents	THOR - Event Transcript of Thoratec Corp conference call, Feb. 08, 2012 / 1:30pm ET
2/8/2012	UBS Equities	Thoratec "4Q11 units & 2012 guidance inline" (Neutral) Jashnani
2/9/2012	Barclays	Thoratec Corp.: Good Quarter - Room For Upside
2/9/2012	Canaccord Genuity	Q4 beat; raise target to \$33, maintain HOLD; we'd own both THOR and HTWR
2/9/2012	Credit Suisse - North America	THOR: Strong Q4; Guidance appears conservative
2/9/2012	JPMorgan	Thoratec Corp. : Solid Finish to 2011 as VAD Market Growth Remains Strong
2/9/2012	Leerink Partners LLC	4Q11: Solid 2012 Guidance With Room for Upside
2/9/2012	Morgan Keegan & Company, Inc.	THOR: Stable Growth; No Surprises; Steady Progress in 2012
2/9/2012	Morningstar, Inc.	Thoratec Beats on Bottom Line, Projects In-Line 2012. See Updated Analyst Note from 09 Feb 2012
2/9/2012	Morningstar, Inc.	Thoratec Beats on Bottom Line, Projects In-Line 2012. See Updated Analyst Note from 09 Feb 2012
2/9/2012	Oppenheimer & Co., Inc.	Solid 4Q; Appropriately Conservative in Setting '12
2/9/2012	Piper Jaffray	Back To Growth; Upgrading to Overweight.

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Date	Contributor	Title
2/9/2012	Rodman & Renshaw, Inc Pre September 2012	Nice quarterRaising PT to \$42
2/9/2012	ThinkEquity LLC	THOR: 4Q11 Review - Strong Finish in 2011 Could Set Up Even Stronger 2012
2/9/2012	Wedbush Securities Inc.	Q4:11 Revenues Rebound on Strength in Europe; Reiterate NEUTRAL Due to Expectations for Slow- Down in 2012
2/9/2012	Wells Fargo Securities, LLC	THOR: Strong Q4 Driven By US HeartMate II Growth
2/9/2012	Wunderlich Securities	Strong Q4 Results, as Europe Drives Upside
2/14/2012	Barrington Research Associates	Thoratec Corp. THOR Strong Q4 Results; Reiterating OUTPERFORM Rating
2/17/2012	Credit Suisse - North America	EPS Changes: 4% or Less: 2/17/11
2/22/2012	Barclays	Thoratec Corp.: 2011 10-K Review
3/5/2012	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
3/15/2012	ThinkEquity LLC	THOR: We Believe the INTERMACS Data Signals a Potentially Strong 1Q12
3/23/2012	Thomson Reuters StreetEvents	THOR - Event Transcript of Thoratec Corp conference call, Mar. 14, 2012 / 9:30am ET
3/27/2012	ThinkEquity LLC	Morning Research Summary - Mar 28 2012 6:46AM
3/27/2012	ThinkEquity LLC	THOR: We Remain Positive on THOR's 2012 Outlook
3/27/2012	Wedbush Securities Inc.	Assuming Coverage with NEUTRAL and \$31 Fair Value
3/28/2012	Morningstar, Inc.	Morningstar Thoratec remains the key VAD market leader. Updated Forecasts and Estimates from 27 Mar 2012
4/4/2012	Barclays	THOR - Recall a Misnomer - Expect Little Impact on Operations
4/4/2012	JPMorgan	Thoratec Corp. : Recall Headlines a Relative Nonevent - ALERT
4/4/2012	Oppenheimer & Co., Inc.	Afternoon Research Summary
4/4/2012	Oppenheimer & Co., Inc.	Over-Reaction on FDA Recall Confusion
4/4/2012	UBS Equities	First Read: Thoratec "Much ado about nothing" (Neutral) Jashnani
4/4/2012	Wells Fargo Securities, LLC	THOR: FDA Posting On HMII Recall Was Not New Information
4/5/2012	Credit Suisse - North America	LVADs - Survey suggests steady US and solid OUS growth
4/5/2012	ThinkEquity LLC	THOR: FDA Recall Related Sell-off Appears Unwarranted; Reiterate Buy
4/9/2012	Oppenheimer & Co., Inc.	LVAD Market Update
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Nov. 01, 2011 / 4:30PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Nov. 01, 2011 / 4:30PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Aug. 03, 2011 / 4:30PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Aug. 03, 2011 / 4:30PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 09, 2011 / 12:20PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 22, 2011 / 1:00PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, May 03, 2011 / 4:30PM ET

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4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, May 03, 2011 / 4:30PM ET
4/9/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Nov. 29, 2011 / 9:30AM ET
4/11/2012	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
4/11/2012	Sadif Analytics	Thoratec Corporation: Summary Due Dilligence Report
4/17/2012	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
4/19/2012	JPMorgan	Cardiovascular Devices : VAD Market Update: Adjusting Estimates for THOR & HTWR Ahead of 1Q Results
4/23/2012	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
4/23/2012	Rodman & Renshaw, Inc Pre September 2012	As expected, HTWR briefing documents jibe with our field checks and raise more questions
4/26/2012	JPMorgan	Cardiovascular Devices: Heartware's Positive Panel Vote: What it Means for HTWR and THOR
4/26/2012	Morningstar, Inc.	Morningstar Thoratec Competitor Gets FDA Panel Nod
4/26/2012	Rodman & Renshaw, Inc Pre September 2012	HTWR panel raises questions about trial conduct, trial management & data interpretation
4/26/2012	ThinkEquity LLC	THOR: 1Q12 Preview - Expect A Record Quarter; Raising Estimates
4/29/2012	Piper Jaffray	1Q12 Earnings Preview: DXCM, THOR, ATRC and HNSN Reporting
5/1/2012	Barclays	Barclays Research March Quarter THOR Revenue & EPS Analyzer: THOR1Q12Analyzer
5/1/2012	Barclays	Barclays Research March Quarter THOR Revenue & EPS Analyzer
5/1/2012	Credit Suisse - North America	THOR: 1Q 2012 Earnings
5/1/2012	UBS Equities	Thoratec "As good as it gets?" (Neutral) Jashnani
5/1/2012	Wedbush Securities Inc.	Strong Q1:2012 Relieves Some Pressure Over Upcoming HVAD Launch; Reiterate NEUTRAL and Raising FV to \$33
5/1/2012	Wells Fargo Securities, LLC	THOR:Strong Q1 Driven By Strength In US And OUS MarketsEsts Up
5/2/2012	Barclays	Thoratec Corp.: Solid 1Q; Positive Market and Share Trends
5/2/2012	Barrington Research Associates	Morning Research (5-2-12) - ONE, RBC, RGC, THOR, TNS, VOCS, WLL
5/2/2012	Canaccord Genuity	LVAD market on fire (as expected); raise price target to \$38
5/2/2012	JPMorgan	Thoratec Corp. : Market Development Efforts Paying Dividends as 1Q Results Come in Even Better than Expected
5/2/2012	Leerink Partners LLC	1Q12: A Strong Beat; Conservative Guidance Leaves More Room for Upside
5/2/2012	Morningstar, Inc.	Morningstar Thoratec Beats Big in 1Q, but Keeps Outlook
5/2/2012	Oppenheimer & Co., Inc.	Blowout 1Q: Appropriately Conservative Guidance; Raise Price Target to \$42
5/2/2012	Piper Jaffray	Strong Beat & Raise Quarter; Raising Price Target to \$44

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Date	Contributor	Title
5/2/2012	Rodman & Renshaw, Inc Pre September 2012	Blowout quarterOutlook strong given significant kinks in Heartware device
5/2/2012	ThinkEquity LLC	THOR: 1Q12 Review - Outlook Remains In Line With Our Bullish Trajectory
5/2/2012	Wunderlich Securities	A Rousing Start to 2012 for THOR, But What's Next?
5/10/2012	Credit Suisse - North America	HTWR: A strong quarter for LVADs
5/11/2012	Credit Suisse - North America	EPS Changes: 4% or Less: 5/11/12
5/11/2012	JPMorgan	Thoratec Corp.: Model Update
5/17/2012	Barclays	Thoratec Corp.: 1Q12 10Q Review
5/30/2012	Credit Suisse - North America	EPS Changes: 4% or Less: 5/31/12
5/31/2012	GlobalData	Thoratec Corporation (THOR) - Product Pipeline Summary
5/31/2012	MarketLine	Thoratec Corporation
5/31/2012	ThinkEquity LLC	THOR: Management Positive on HM II's Outlook; 2Q HM II Adoption Looks Solid
6/1/2012	ThinkEquity LLC	Post-Close Research Summary - Jun 01 2012 4:09PM
6/7/2012	Wells Fargo Securities, LLC	THOR: Incorporating Medical Device TaxLowering Ests.
6/12/2012	MarketLine	Thoratec Corporation
6/14/2012	Oppenheimer & Co., Inc.	Management Meetings Update; Story On-Track
6/18/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, May 01, 2012 / 4:30PM ET
6/18/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, May 01, 2012 / 4:30PM ET
6/18/2012	Wells Fargo Securities, LLC	THOR: Comments From 2012 Wells Fargo Securities Healthcare Conference
6/19/2012	Barclays	Thoratec Corp.: Potential Sources of Upside
6/19/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 19, 2012 / 9:00AM ET
6/28/2012	Morningstar, Inc.	Morningstar The Supreme Court Upholds Health-Care Reform; Valuation Impact on the Sector's Stocks Is Minimal
7/10/2012	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
7/10/2012	Rodman & Renshaw, Inc Pre September 2012	Termination of Coverage: Thoratec Corporation
7/11/2012	Credit Suisse - North America	LVADs - Survey suggests robust OUS and soft US growth
7/19/2012	Credit Suisse - North America	HTWR: 2Q12 Earnings Preview
7/19/2012	Wedbush Securities Inc.	Q2 Outlook: INTERMACS Data Corroborate Expectations of Lighter US Implant Rate Following Strong Q1; Reiterate NEUTRAL
7/23/2012	Sadif Analytics	Will Thoratec Corporation Deliver Long-Term Returns?
7/24/2012	Credit Suisse - North America	THOR: 2Q12 Earnings Preview
7/25/2012	ThinkEquity LLC	THOR: 2Q12 Preview - Could be Another Record Quarter
7/27/2012	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation

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7/30/2012	MarketLine	Thoratec Corporation
7/31/2012	Wells Fargo Securities, LLC	THOR: Slight Revenue Miss But HMII Growth Solid
8/1/2012	Barclays	Barclays Research June Quarter THOR Revenue & EPS Analyzer
8/1/2012	Barclays	Barclays Research June Quarter THOR Revenue & EPS Analyzer: THOR2Q12Analyzer
8/1/2012	Barrington Research Associates	Mid-Day Research Notes (8-1-12) - LFUS, RBC, SRDX, THOR, TNS, TWX
8/1/2012	Canaccord Genuity	Q2 light; maintain HOLD, lower price target to \$35
8/1/2012	Credit Suisse - North America	THOR: In line 2Q; HM II solid
8/1/2012	JPMorgan	Thoratec Corp.: Mixed 2Q as Focus Shifts to Looming Competition
8/1/2012	Morningstar, Inc.	Morningstar Thoratec Meets Our Expectations in Second Quarter
8/1/2012	Piper Jaffray	Sustained OUS Growth Headlines Solid Quarter
8/1/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Aug. 01, 2012 / 4:30PM ET
8/1/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Aug. 01, 2012 / 4:30PM ET
8/1/2012	UBS Equities	Thoratec "HM2 solid" (Neutral) Jashnani
8/1/2012	Wedbush Securities Inc.	Q2 Light on Non-HMII Revs, not a Meaningful Miss; Near-Term Focus on HVAD Approval; Reiterate NETURAL
8/2/2012	Barclays	Thoratec Corp.: In-line 2Q; Guidance Nudged up
8/2/2012	Barrington Research Associates	Morning Research (8-2-12) - APEI,CCO,CKEC,EDMC,SM,THOR
8/2/2012	Leerink Partners LLC	2Q12: DT Momentum Continues Despite Sales Miss
8/2/2012	Oppenheimer & Co., Inc.	Market Commentary Robust Again; Guidance Raised
8/2/2012	Piper Jaffray	CMS to Review VADs: We are Cautiously Optimistic
8/2/2012	ThinkEquity LLC	THOR: 2Q12 Review - Management Remains Bullish on 2H12 by Raising 2012 Guidance
8/2/2012	Wunderlich Securities	Mixed Q2 Results As LVAD Market Remains on a Volatile, Upward Trajectory
8/3/2012	Barclays	Thoratec Corp.: 2Q12 10Q Review
8/3/2012	Canaccord Genuity	CMS schedules MEDCAC meeting for LVADs; see it as neutral event for THOR/HTWR
8/6/2012	Barrington Research Associates	Thoratec Corp. THOR Mixed Q2/12 Results; DT Growth Sets Up for Interesting Dynamic in the U.S. as HTWR Enters the BTT Market; Reiterating OUTPERFORM
8/8/2012	Credit Suisse - North America	EPS Changes: 4% or Less: 8/7/12
8/12/2012	Leerink Partners LLC	Updated Estimates and LVAD Market Model
8/16/2012	Wells Fargo Securities, LLC	Revised U.S. Market Assumptions Suggest Modest Upside For THOR
9/4/2012	Piper Jaffray	CMS Questions Not Adversarial: We Remain Cautiously Optimistic
9/5/2012	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
9/7/2012	Northland Securities	Initiating Coverage of THOR with an Outperform Rating, \$42 PT
9/12/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Sep. 13, 2012 / 2:30PM ET
9/14/2012	ThinkEquity LLC	THOR: Takeaways From ThinkEquity's 9th Annual Growth Conference

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9/18/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Sep. 19, 2012 / 8:30AM ET
9/26/2012	Morningstar, Inc.	Morningstar New competition is aiming to cut into Thoratec's dominance of the chronic VAD market.
10/2/2012	UBS Equities	Thoratec "Upgrade to Buy" (Buy) Jashnani
10/11/2012	Credit Suisse - North America	LVADs - LVAD Survey: OUS Strong, US seasonally soft
10/11/2012	Credit Suisse - North America	THOR: Incrementally More Positive on 2013/14 Raising PT
10/11/2012	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
10/12/2012	Credit Suisse - North America	The Healthcare Daily: 10/12/12
10/12/2012	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
10/17/2012	Wedbush Securities Inc.	Q3 Outlook: INTERMACS Data Suggest Bump in US Implants; Updating Estimates; Reiterate NEUTRAL
10/30/2012	Canaccord Genuity	US VAD survey portends upside for THOR in Q3, barring any EU setback
10/30/2012	Credit Suisse - North America	THOR: Thoratec Corp
10/30/2012	Wedbush Securities Inc.	Q3 Preview: Expect THOR to Raise FY:12 Revenue Guidance due to Later than Expected Competitive Launch; Reiterate NEUTRAL
11/1/2012	Barclays	Barclays Research September Quarter THOR Revenue & EPS Analyzer
11/1/2012	Barclays	Barclays Research September Quarter THOR Revenue & EPS Analyzer: THOR3Q12Analyzer
11/1/2012	Barrington Research Associates	Morning Research Notes (11-2-12) - ACTV, ATRC, BRY, CATM, LMAT, LOPE, NCMI, NTSP, ROVI, SQI, THOR
11/1/2012	Barrington Research Associates	Morning Research Notes (11-1-12) - ATRC, EDMC, SM, THOR
11/1/2012	Canaccord Genuity	Strong Q3 as expected; positive for VAD market; maintain HOLD
11/1/2012	Credit Suisse - North America	THOR: 3Q12 Beat & Raise; Raising Estimates
11/1/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Nov. 01, 2012 / 4:30PM ET
11/1/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Nov. 01, 2012 / 4:30PM ET
11/1/2012	Wedbush Securities Inc.	Solid Q3 Dodges Seasonal Weakness; Awaiting Timing of HVAD Approval; Reiterate NEUTRAL and Raising FV to \$35 from \$33
11/2/2012	Barclays	Thoratec Corp.: Solid 3Q; Strong Underlying Trends
11/2/2012	Barrington Research Associates	Thoratec Corp. THOR Strong Q3/12 Results; Guidance Raised; Reiterating OUTPERFORM
11/2/2012	Barrington Research Associates	Mixed Q3/12 Results; DT Growth Sets Up for Interesting Dynamic in the U.S. as HTWR Enters the BTT Market; Reiterating OUTPERFORM
11/2/2012	JPMorgan	Thoratec Corp. : Strong 3Q as HVAD Delay and DT Momentum Drive Upside; 2013 Outlook Still Hazy
11/2/2012	Leerink Partners LLC	3Q12: A Very Strong Quarter All Around Highlights Sustainable Market Growth
11/2/2012	Morningstar, Inc.	Morningstar Thoratec Beats Expectations in 3Q

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11/2/2012	Oppenheimer & Co., Inc.	Not Getting Boring; Another Beat and Raise
11/2/2012	Piper Jaffray	Beat and Raise Quarter; Strong LVAD Market Continues
11/2/2012	UBS Equities	Thoratec "Easy button" (Buy) Jashnani
11/2/2012	Wells Fargo Securities, LLC	THOR: Impressive Q3Growth Broadbased Across US/OUS Markets
11/2/2012	Wunderlich Securities	Q3 Results Beat Expectations, Guidance Raised
11/5/2012	Credit Suisse - North America	HTWR: Expect in line Q3 with focus on FDA approval delay
11/5/2012	Northland Securities	Q3-12 Earnings Note
11/6/2012	Barclays	Thoratec Corp.: 3Q12 10-Q Review
11/6/2012	Sadif Analytics	Is Thoratec Corporation Worth its Desired Premium?
11/11/2012	Wells Fargo Securities, LLC	THOR: Model Update Due To HTWR Approval DelayNT Upside Likely
11/14/2012	Piper Jaffray	MEDCAC Meeting Follows Expected Course
11/15/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Nov. 15, 2012 / 11:00AM ET
11/20/2012	Wells Fargo Securities, LLC	HTWR/THOR:HVAD ApprovedNew Stroke Data ConcerningAdj Ratings
11/25/2012	UBS Equities	First Read: Thoratec "Shareholder friendliness" (Buy) Jashnani
11/26/2012	Credit Suisse - North America	EPS Changes: 4% or Less
11/26/2012	JPMorgan	Cardiovascular Devices: Reiterate OW and Top Pick on HTWR; Our Thoughts on the HVAD IFU and the
11/20/2012		Outlook for 2013
11/26/2012	Oppenheimer & Co., Inc.	\$150M Share Repurchase Utilizes Strong Balance Sheet
11/27/2012	Piper Jaffray	Highlights From The 24th Annual Piper Jaffray Healthcare Conference
11/27/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Nov. 27, 2012 / 9:00AM ET
11/27/2012	Wells Fargo Securities, LLC	THOR: Favorable BTT Data Should Make HMII More Competitive
11/29/2012	Credit Suisse - North America	HTWR: Assessing ENDURANCE Risk
12/3/2012	Credit Suisse - North America	THOR: FDA meeting could have implications for PHP
12/5/2012	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
12/6/2012	Canaccord Genuity	FDA Circulatory Devices panel decision = modest headline risk, but no estimate risk; maintain HOLD
12/6/2012	Oppenheimer & Co., Inc.	PHP Thoughts: FDA Likely Keeps Data Bar High
12/7/2012	Summer Street Research	Non-Roller (Axial) Type Ventricular Support Systems To Require PMA
12/11/2012	Oppenheimer & Co., Inc.	HeartMate II Receives Japan Regulatory Approval
12/11/2012	Wedbush Securities Inc.	HeartMate II Approved in Japan; Reiterate NEUTRAL, Raising FV to \$36 from \$35
12/11/2012	Wells Fargo Securities, LLC	THOR: HeartMate II Approval In Japan Represents Therapy Expansion Opportunity
12/12/2012	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Dec. 12, 2012 / 10:35AM ET
12/19/2012	Canaccord Genuity	Survey data and management meetings augment our perspective on VAD market; reiterate HTWR (BUY) and THOR (HOLD) ratings, raise THOR target to \$38

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12/19/2012	JPMorgan	Cardiovascular Devices : VAD Model Updates
12/20/2012	Morningstar, Inc.	Morningstar HeartWare is aiming to cut into Thoratec's dominance of the chronic VAD market.
12/30/2012	Wells Fargo Securities, LLC	THOR/HTWR: Updating Our LVAD Market ModelAdjusting Estimates
1/7/2013	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
1/7/2013	Northland Securities	HeartMate-II receives green light for REVIVE-IT study
1/7/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jan. 07, 2013 / 11:30AM ET
1/7/2013	Wells Fargo Securities, LLC	THOR: REVIVE-IT Should Give HeartMate II A Marketing Boost
1/23/2013	Wedbush Securities Inc.	Q4 Outlook: INTERMACS Data Suggest Lighter U.S. Implant Volumes; Updating Estimates; Reiterate NEUTRAL
1/30/2013	Wedbush Securities Inc.	Expecting In-Line Q4, but See Potential Downside Risk to Consensus; Reiterate NEUTRAL
2/3/2013	Credit Suisse - North America	THOR: Expect solid 4Q; mid-single top-line in 2013
2/3/2013	Oppenheimer & Co., Inc.	Thoughts Into 4Q12 Earnings Call
2/3/2013	Piper Jaffray	Earnings Preview: EW, THOR, CPTS, ABMD on Deck
2/4/2013	Barclays	Barclays Research December Quarter THOR Revenue & EPS Analyzer
2/4/2013	Barclays	Barclays Research December Quarter THOR Revenue & EPS Analyzer: THOR4Q12Analyzer
2/5/2013	Barrington Research Associates	Morning Research Notes (2-5-13) - CATM, CPTS, EGOV, EPAY, OSUR, SLH, SNA, THOR
2/5/2013	Canaccord Genuity	Q4 upside offset by cautious guidance; maintain HOLD, lower target to \$37
2/5/2013	Credit Suisse - North America	THOR: Solid 4Q; 2013 guidance seems conservative
2/5/2013	Piper Jaffray	THOR Regains EU Market Share Lead On Strong Q4 Results
2/5/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Feb. 05, 2013 / 4:30PM ET
2/5/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Feb. 05, 2013 / 4:30PM ET
2/5/2013	Wedbush Securities Inc.	Q4:12 Recap; Reiterate NEUTRAL
2/5/2013	Wells Fargo Securities, LLC	THOR: Impressive Q4Competitive Position Appears Solid
2/6/2013	Barclays	Thoratec Corp.: Solid 4Q; Reasonable '13 Guidance
2/6/2013	JPMorgan	Thoratec Corp.: 2012 Ends on a High Note; Now the Real Test Begins
2/6/2013	Leerink Partners LLC	4Q12: Strong Quarter, 2013 Guidance Seems Conservative
2/6/2013	Morningstar, Inc.	Morningstar Demand for Thoratec's Products Strong, Investments Grow in 4Q
2/6/2013	Northland Securities	Strong Q4; Leadership Status Regained In Europe
2/6/2013	Oppenheimer & Co., Inc.	Solid 4Q Across the Board; Sets '13 Slightly Below
2/6/2013	Sadif Analytics	Is Thoratec Corporation Share Price Sustainable?
2/6/2013	Wunderlich Securities	Another Big Top Line Beat for THOR - Will It Get Rewarded?
2/7/2013	Barrington Research Associates	Thoratec Corp. THOR Strong Q4/12; Solid FY/13 Guidance; Product Development Encouraging
2/7/2013	Credit Suisse - North America	HTWR: Advisory seems manageable; CMS opens NCA
2/8/2013	Northland Securities	CMS Opens up NCD on VAD's; Downgrading to Market Perform.

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2/21/2013	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
2/22/2013	Credit Suisse - North America	HTWR: An execution story for 2013
2/27/2013	JPMorgan	Thoratec Corp. : Adjusting Estimates
2/27/2013	Morningstar, Inc.	Morningstar Thoratec's long-term prospects remain bright, despite near-term headwinds.
3/5/2013	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
3/7/2013	Northland Securities	Thoughts on VAD NCD Comments
3/13/2013	William Blair & Company	Thoratec Corporation:Initiating Coverage With a Market Perform Rating
3/13/2013	William Blair & Company	Initiating Coverage of Three Providers of Innovative Devices for the Treatment of Heart Failure (ABMD, HTWR, THOR)
3/14/2013	Credit Suisse - North America	HTWR: Secondary creates flexibility in center support/market and pipeline development
3/14/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Mar. 14, 2013 / 8:00AM ET
3/26/2013	Wells Fargo Securities, LLC	LVAD's: ISHLT Abstracts Mostly Positive For HTWR And THOR
3/28/2013	Credit Suisse - North America	HTWR: ISHLT abstracts favorable
3/29/2013	Sadif Analytics	Is Thoratec Corporation Share Price Sustainable?
4/2/2013	Credit Suisse - North America	HTWR: Insights from Canadian HVAD experience
4/4/2013	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
4/9/2013	JPMorgan	Cardiovascular Devices: What the Docs Are Saying: HVAD Launch Running Ahead of Street Expectations; Reiterate OW
4/22/2013	Credit Suisse - North America	HTWR: Expect in line 1Q based on strong US launch
4/24/2013	Canaccord Genuity	Q1 preview; target to \$39 from \$37; maintain HOLD
4/26/2013	Ladenburg Thalmann & Co. Inc.	MED-TECHnical Report Focusing on THOR, CNMD, PODD, SIRO and BIO
4/28/2013	Piper Jaffray	Earnings Preview: HTWR, ELGX, DXCM, ABMD, THOR, VOLC, PODD on Deck
4/28/2013	Wells Fargo Securities, LLC	LVADs: ISHLT Wrap-Up; THOR Big In Japan
4/29/2013	Credit Suisse - North America	HTWR: Strong start to US launch
4/30/2013	JPMorgan	Thoratec Corp. : Model Update
5/1/2013	Credit Suisse - North America	THOR: Expect in-line 1Q
5/1/2013	Wells Fargo Securities, LLC	THOR: Challenging Q1 But Reasons For Optimism
5/2/2013	Credit Suisse - North America	THOR: Slight top-line miss, guidance reaffirmed
5/2/2013	Morningstar, Inc.	Morningstar Competition Cuts into Thoratec's 1Q
5/2/2013	Piper Jaffray	Competitive Launch Lightens Q1; FY Guidance Maintained, Thesis Intact
5/2/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, May 02, 2013 / 4:30PM ET
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5/3/2013	Barrington Research Associates	Thoratec Corp. THOR Weaker-Than-Expected Q1/13 Results; Share Losses to Moderate in 2H/13
5/3/2013	Canaccord Genuity	Q1 light, ceded share globally; maintain HOLD, price target to \$36 from \$39
5/3/2013	JPMorgan	Thoratec Corp. : Round 1 Goes to HTWR; Full Year Guidance Maintained But Now Backend Loaded
5/3/2013	Leerink Partners LLC	1Q13: Sales Miss Amid Competitive Launch, But Management Confident in Outlook
5/3/2013	Northland Securities	Weak Q1-13
5/3/2013	Oppenheimer & Co., Inc.	1Q Light; Guidance Reiterated; Mkt Growth is the Key
5/3/2013	UBS Equities	Thoratec "Unsurprising miss" (Buy) Jashnani
5/3/2013	William Blair & Company	Thoratec Corporation:Domestic Competition Weighs on First-Quarter Results; Uncertainty Surrounding Ongoing HVAD Impact Likely to Constrain the Stock
5/3/2013	Wunderlich Securities	Q1 Miss Not a Major Surprise in Light of Strong Launch for Heartware (HTWR)
5/5/2013	UBS Equities	Alpha Preferences - US "Changes to US Alpha Preferences" Ching
5/6/2013	Credit Suisse - North America	First Edition - US Alert: 05/06/13
5/6/2013	Credit Suisse - North America	HTWR: Risk Reward Balanced, Downgrade to Neutral
5/6/2013	Credit Suisse - North America	THOR: Risk Reward Balanced, Upgrade to Neutral
5/10/2013	Barclays	Thoratec Corp.: 10-Q Review
5/14/2013	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
5/16/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, May 16, 2013 / 1:40PM ET
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5/29/2013	Wedbush Securities Inc.	Dropping Coverage
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6/17/2013	Northland Securities	To upgrade or not to upgrade
6/18/2013	Wells Fargo Securities, LLC	THOR: Quick Take From The 2013 Wells Fargo Healthcare Conference
6/19/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 19, 2013 / 9:30AM ET
6/19/2013	UBS Equities	Thoratec "CFO update" (Buy) Jashnani
6/25/2013	Sadif Analytics	Are Thoratec Corporation Long-Term Fundamentals Solid?
6/30/2013	UBS Equities	First Read: Thoratec "Acquires DH-II pump; cheap & early-stage" (Buy) Jashnani
6/30/2013	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation
7/1/2013	Barclays	Thoratec Corp.: DH-II Purchase Adds Pipeline + Costs
7/1/2013	Canaccord Genuity	DuraHeart 2 acquisition a call option; maintain HOLD
7/1/2013	Leerink Partners LLC	DuraHeart II Acquisition Adds Another Shot On Goal to Further Fill the Pipeline
7/1/2013	Piper Jaffray	DuraHeart II Acquisition Adds to VAD Pipeline

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7/1/2013	William Blair & Company	Thoratec Corporation:Purchase of DuraHeart II Bolsters Increasingly Impressive Product Portfolio
7/2/2013	Northland Securities	Thoughts on DuraHeart II acquisition
7/9/2013	JPMorgan	Cardiovascular Devices: What the Docs Are Saying: HVAD Launch Continues to Build Momentum; Reiterate OW
7/10/2013	Barclays	U.S. Medical Supplies & Devices: 2Q Could Be Weak - Does it Matter?
7/11/2013	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
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7/25/2013	Wunderlich Securities	Dropping Coverage
7/26/2013	Credit Suisse - North America	LVADs - 2Q US Survey Implies Mid-teens Market Growth YoY & Growing HVAD Share
7/28/2013	Barclays	Barclays Research Medical Supplies and Devices Weekly Valuation Comp Sheet and Calendar: Valcomp MedTech_072613
7/28/2013	Barclays	Barclays Research Medical Supplies and Devices Weekly Valuation Comp Sheet and Calendar
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7/28/2013	Piper Jaffray	Earnings Preview: ELGX, THOR, ABMD, and COV in the Week Ahead
7/29/2013	Credit Suisse - North America	THOR: Updating Estimates; Lowering Price Target
7/31/2013	Barclays	Barclays Research June Quarter THOR Revenue & EPS Analyzer: THOR2Q13Analyzer
7/31/2013	Barclays	Barclays Research June Quarter THOR Revenue & EPS Analyzer
7/31/2013	Credit Suisse - North America	THOR: 2Q Big Beat; US Market Share Trend in Focus
7/31/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Jul. 31, 2013 / 4:30PM ET
7/31/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jul. 31, 2013 / 4:30PM ET
7/31/2013	Wells Fargo Securities, LLC	THOR: Strong Q2U.S. ReboundsJapan Drives OUS Growth
8/1/2013	Barclays	Thoratec Corp.: Nice Beat; Market Bounce
8/1/2013	Canaccord Genuity	Q2 "looks" a lot better than Q1, especially OUS; maintain HOLD, raise price target to \$37 from \$36
8/1/2013	Credit Suisse - North America	HTWR: Raising Estimates to Reflect US DT Trial
8/1/2013	JPMorgan	Thoratec Corp. : Strong 2Q Results Should Quell Market Growth Concerns
8/1/2013	Leerink Partners LLC	Broad Based Strength in HeartMate II Sales Drives Top and Bottom Line Beat
8/1/2013	Morningstar, Inc.	Morningstar Thoratec Delivers Strong 2Q Following Anemic 1Q

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8/1/2013	Northland Securities	Upgrading to Outperformseems like worst is behind us
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8/1/2013	Piper Jaffray	THOR Bounces Back
8/1/2013	Piper Jaffray	VAD NCD Proposal Positive For THOR
8/1/2013	Wells Fargo Securities, LLC	LVADs: Proposed NCD An Incremental Positive For THOR
8/2/2013	JPMorgan	Cardiovascular Devices : Draft VAD NCD Language Favors Thoratec, But Overall Impact on Heartware Likely Limited
8/2/2013	Leerink Partners LLC	LVADs: Proposed NCD Relatively Benign but Incrementally Positive for THOR
8/5/2013	Barrington Research Associates	Thoratec Corp. THOR Solid Q2/13 Results Confidence in Double-Digit Market Growth Increases
8/8/2013	Barclays	HTWR Q2 First Look
8/8/2013	Canaccord Genuity	Increasing forward estimates slightly; raise target to \$38 from \$37
8/8/2013	JPMorgan	Cardiovascular Devices: VAD Model Updates
8/8/2013	Wells Fargo Securities, LLC	HTWR: Q2 Results Good For THOR
8/9/2013	Credit Suisse - North America	LVADs - Upgrading HTWR & THOR to Outperform from Neutral
8/12/2013	Oppenheimer & Co., Inc.	LVAD Market Update
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8/25/2013	Leerink Partners LLC	LVAD Survey: Strong Double-Digit Market Growth, but Market Shares Favor THOR
8/28/2013	MarketLine	Thoratec Corporation
9/5/2013	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review
9/9/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Sep. 09, 2013 / 1:50PM ET
9/15/2013	Wells Fargo Securities, LLC	THOR: INTERMACS Publishes Updated Thrombosis Rate With HM2
9/16/2013	Leerink Partners LLC	Updating Valuation
9/16/2013	Oppenheimer & Co., Inc.	Highlights from Management Meetings
9/19/2013	Credit Suisse - North America	THOR: Management Meetings Favorable
9/24/2013	Credit Suisse - North America	THOR: Proposed ICD-10 Changes & PHP Pricing
9/25/2013	Piper Jaffray	Thoratec - Tales From The Road
9/25/2013	Wells Fargo Securities, LLC	THOR: Key Takeaways From Management Meetings
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10/25/2013	Barclays	Barclays 2013 TCT Schedule
	Barclays	Barclays 2013 TCT Schedule: TCT Preview Calendar 10.10.13
10/25/2013	Credit Suisse - North America	THOR: Raising Estimates Slightly Ahead of 3Q
10/29/2013	Barclays	U.S. Medical Supplies & Devices: MedTech Short Interest Monitor
10/29/2013	Wells Fargo Securities, LLC	LVADS: Final NCD Positive For THOR In Our View
10/30/2013	Barclays	Barclays Research THOR September Quarter Revenue & EPS Analyzer
10/30/2013	Credit Suisse - North America	THOR: 3Q Good; NCD Likely Modest Positive
10/30/2013	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Oct. 30, 2013 / 4:30PM ET
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10/30/2013	Wells Fargo Securities, LLC	THOR: Strong Q3 Share Relatively Stable
10/31/2013	Barclays	Thoratec Corp.: Good Quarter; Market still Attractive
10/31/2013	Barrington Research Associates	Thoratec Corp. THOR Solid Q3/13 Results; CMS Decision Requires BTT Eligible Patients to Be On the Transplant List which is Favorable for THOR; Market is Growing
10/31/2013	Canaccord Genuity	Own both Upgrade rating to BUY, target to \$45 from \$38
	JPMorgan	Thoratec Corp. : Good But Not Great; Peripherals and Tax Rate Drive 3Q Upside
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10/31/2013	Morningstar, Inc.	Morningstar Thoratec Sees Further Strength in 3Q
10/31/2013	Northland Securities	Good OutlookRaising PT to \$46
10/31/2013	Oppenheimer & Co., Inc.	Solid 3Q; Pipeline On-Track; CMS Finalizes NCD
10/31/2013	Piper Jaffray	Thoratec Shows Strong Competitive Performance
11/1/2013	Leerink Partners LLC	Model Update: Raising EPS on Conversion from GAAP to Non-GAAP
11/4/2013	Barclays	Thoratec Corp.: 10-Q Review - No Major Updates
11/5/2013	Sadif Analytics	Is Thoratec Corporation Share Price Sustainable?
11/7/2013	JPMorgan	Thoratec Corp.: Model Update
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11/11/2013	Leerink Partners LLC	Slight Estimate Change Post-HTWR Earnings
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12/2/2013	Northland Securities	Thrombosis Controversy Dogs HM-II		
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12/9/2013	William Blair & Company	Thoratec Corporation: Announces \$200 Million Share Repurchase Program		
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12/18/2013	Northland Securities	Takeaways from LVAD Dinner Event		
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1/2/2014	Streetwise Reports	Follow the M&A Money to Small- and Mid-Cap Cardiovascular Medtechs: Jason Mills		
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1/9/2014	Oppenheimer & Co., Inc.	Small/Mid-Cap MedTech		
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1/29/2014	Sadif Analytics	Will Thoratec Corporation Build Long-Term Returns?		
1/31/2014	Credit Suisse - North America	THOR: 4Q Preview: US Market in Focus		
1/31/2014	Validea	Validea Guru Analysis Report for THOR. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.		
2/2/2014	Leerink Partners LLC	STS: Cautious Near-Term Market Growth Commentary, 2014 All About Pipeline		
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2/5/2014	Barclays	Thoratec Corp.: Guidance Cautious on Thrombosis		
2/5/2014	Canaccord Genuity	Puts and takes in Q4; maintain BUY, price target to \$40 from \$45		
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2/6/2014	Barrington Research Associates	Thoratec Corp. THOR HTWR Making Headway but Valuation of THOR is Very Attractive; Setting up to		
2/6/2014	Barrington Research Associates	be a Great 2016 Story or a Bargain for a Strategic at Current Levels		
2/6/2014	MarketLine	Thoratec Corporation - Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report		
2/12/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Feb. 12, 2014 / 3:05PM ET		
2/13/2014	GlobalData	Thoratec Corporation (THOR) - Medical Equipment - Deals and Alliances Profile		
2/19/2014	Barclays	Thoratec Corp.: 10-K Review - No Major Updates		
2/19/2014	BTIG	THOR: Initiating Coverage with a BUY Rating		
2/28/2014	JPMorgan	Thoratec Corp. : Model Update		
3/3/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Mar. 03, 2014 / 4:00PM ET		
3/3/2014	Wells Fargo Securities, LLC	THOR: Checks Suggest Pocket Controller Issue Is Very Manageable		
3/4/2014	Canaccord Genuity	Bad headline, but don't see much business impact; BUY		
3/4/2014	Oppenheimer & Co., Inc.	Pocket Controller Notice Impact Looks Limited		
3/4/2014	Piper Jaffray	THOR Issues Correction Notification On New Pocket Controller		
3/4/2014	William Blair & Company	Thoratec Corporation:Controller Issue Highlights Challenges in Managing Patient Population, Though		
3/4/2014	William Bian & Company	Actual Impact Should Be Minor		
3/5/2014	Northland Securities	Medical Device Correction for Controller Label / Training Issues Not Serious		
3/6/2014	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation		
3/11/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Mar. 11, 2014 / 9:00AM ET		
3/24/2014	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review		
3/31/2014	MarketLine	Thoratec Corporation - Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report		
4/7/2014	Morningstar, Inc.	Morningstar Dropping Coverage of Thoratec		

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Date	Contributor	Title		
4/9/2014	BTIG	Preview of International Society for Heart & Lung Transplantation Meeting; We Highlight Important Upcoming Presentations at ISHLT This Week in San Diego (THOR, HTWR, STJ, ABMD, SSH)		
4/9/2014	William Blair & Company	More Observations From the MCS Master Course Preceding ISHLT		
4/10/2014	Barclays	U.S. Medical Supplies & Devices: ISHLT Update on THOR/HTWR		
4/10/2014	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review		
4/13/2014	Barclays	U.S. Medical Supplies & Devices: ISHLT Positive for THOR/HTWR		
4/13/2014	Leerink Partners LLC	ISHLT Wrap-Up: Encouraging HTWR Data Bode Well for Continued Adoption		
4/14/2014	BTIG	Thoratec Corporation (THOR - BUY, \$42 PT); Thrombus Seems a Non Issue; Pipeline Coming Soon		
4/14/2014	JPMorgan	Cardiovascular Devices: What the Docs Are Saying: State of the VAD Market Ahead of 1Q Results		
4/14/2014	Oppenheimer & Co., Inc.	Afternoon Research Summary		
4/14/2014	William Blair & Company	Data on HVAD and HMII Proves Solid, Key Opinion Leader Meeting Provides Unique Insights Into Generation Technologies		
4/15/2014	MarketLine	Thoratec Corporation - Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report		
4/17/2014	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation		
4/23/2014	Sadif Analytics	Is Thoratec Corporation a Good Long-Term Investment?		
5/1/2014	Barclays	HTWR - 1Q Results First Look		
5/1/2014	JPMorgan	Thoratec Corp. : Model Update		
5/2/2014	Credit Suisse - North America	THOR: 1Q Preview: Market Share in Focus		
5/5/2014	Wells Fargo Securities, LLC	THOR: Mixed Q1Strong Market Growth Offset By Share Loss		
5/6/2014	Barclays	Barclays Research THOR 1Q14 Revenue & EPS Analyzer: THOR1Q14Analyzer		
5/6/2014	Barclays	Barclays Research THOR 1Q14 Revenue & EPS Analyzer		
5/6/2014	Canaccord Genuity	Q1 benefits from Japan bolus; share loss accelerates in EU; target to \$37 from \$40		
5/6/2014	Credit Suisse - North America	THOR: LVAD Markets OK but THOR Share Light		
5/6/2014	Piper Jaffray	1Q14 Preview		
5/6/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, May 06, 2014 / 4:30PM ET		
5/6/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, May 06, 2014 / 4:30PM ET		
5/6/2014	William Blair & Company	Thoratec Corporation:Nothing Out of the Ordinary; Worldwide Share Loss and the Wait for PHP and HMIII in Europe Continue		
5/7/2014	Barclays	Thoratec Corp.: Market Growth but Share Concerns		
5/7/2014	BTIG	THOR (BUY; \$42 PT), HTWR (BUY, \$110 PT): LVADs - Market Growth is Most Important		

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Date	Contributor	Title			
5/7/2014	JPMorgan	Thoratec Corp. : Mixed 1Q Results; Mounting Share Losses Cause for Concern			
5/7/2014	Leerink Partners LLC	2014 Outlook: Back-End Loaded Year as Headwinds Ease			
5/7/2014	Northland Securities	In-line Q1 marred by share losses			
5/7/2014	Oppenheimer & Co., Inc.	Noise Muddles 1Q Beat			
5/7/2014	Piper Jaffray	Thoughts On 1Q14			
5/9/2014	Validea	Validea Guru Analysis Report for THOR. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.			
5/13/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, May 13, 2014 / 6:00PM ET			
5/16/2014	Barrington Research Associates	Thoratec Corp. THOR Slight but Continued Share Losses Creates Attractive Valuation Scenario			
5/16/2014	GlobalData	Thoratec Corporation (THOR) - Medical Equipment - Deals and Alliances Profile			
5/19/2014	MarketLine	Thoratec Corporation - Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report			
5/31/2014	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation			
6/10/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 10, 2014 / 4:20PM ET			
6/11/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 11, 2014 / 5:40PM ET			
6/12/2014	William Blair & Company	Thoratec Corporation: Highlights From William Blair's 34th Annual Growth Stock Conference			
6/17/2014	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review			
6/17/2014	MarketLine	Thoratec Corporation - Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report			
6/18/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Jun. 18, 2014 / 8:55AM ET			
6/18/2014	Wells Fargo Securities, LLC	THOR: Quick Take From The 2014 Wells Fargo Healthcare Conference			
6/23/2014	Wells Fargo Securities, LLC	THOR: HM3 And PHP CE Mark Studies Posted On Clintrials.gov			
6/27/2014	Canaccord Genuity	HeartMate III undergoes first human implant; CE Mark trial commences enrollment; maintain BUY and \$37 price target			
6/27/2014	Oppenheimer & Co., Inc.	Afternoon Research Summary			
6/27/2014	Oppenheimer & Co., Inc.	Important Milestone Reached-HMIII Trial Starts			
7/2/2014	Oppenheimer & Co., Inc.	Thoughts on Acquisition of Apica Cardiovascular			
7/2/2014	William Blair & Company	Thoratec Corporation:Purchase of Apica a Nice Addition to the Portfolio but Nothing Thesis-Changing			
7/3/2014	Canaccord Genuity	Apica acquisition augments (VAD) asset; raise target to \$39 from \$37			
7/3/2014	JPMorgan	Thoratec Corp. : Apica Deal Strengthens MIS Toolkit and Adds Long-Term Tax Flexibility			
7/9/2014	GlobalData	Thoratec Corporation (THOR) - Financial and Strategic SWOT Analysis Review			

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Date	Contributor	Title			
7/9/2014	MarketLine	Thoratec Corporation - Mergers & Acquisitions (M&A), Partnerships & Alliances and Investment Report			
7/14/2014	Barclays	Barclays Research Medical Supplies & Device June Quarter Revenue & EPS Analyzer Booklet: REV_EPS Analyzer Jun2014			
7/14/2014	Barclays	Barclays Research Medical Supplies & Device June Quarter Revenue & EPS Analyzer Booklet			
7/16/2014	Sadif Analytics Prime	Is There Long-Term Value in Thoratec Corporation?			
7/21/2014	Wright Reports	Wright Investors Service Comprehensive Report for Thoratec Corporation			
7/28/2014	Wells Fargo Securities, LLC	LVADs: Downgrading THOR To Market Perform			
8/1/2014	Credit Suisse - North America	THOR: 2Q Preview			
8/1/2014	JPMorgan	Thoratec Corp. : Model Update			
8/3/2014	Wells Fargo Securities, LLC	THOR: Expect Positive Pipeline Updates On Q2 Call			
8/6/2014	Barclays	THOR 2Q14 Revenue & EPS Analyzer: THOR2Q14Analyzer			
8/6/2014	Barclays	THOR 2Q14 Revenue & EPS Analyzer			
8/6/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Brief of Thoratec Corp conference call, Aug. 06, 2014 / 4:30PM ET			
8/6/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Aug. 06, 2014 / 4:30PM ET			
8/6/2014	William Blair & Company	Thoratec Corporation:Perfect Storm of Problems Results in Slashed Guidance; Fixes to These Issues Appear Protracted			
8/7/2014	Barclays	Thoratec Corp.: Rebasing Expectations			
8/7/2014	Barrington Research Associates	Thoratec Corp. THOR Major Miss; Guidance Reduced by 15%; Trading Mid-Teens Ex-cash			
8/7/2014	BTIG	Thoratec, HeartWare: LVADs THOR Drops a Bomb with Large Miss and Chopped Guidance; Gives Dire Outlook on LVAD Market			
8/7/2014	Canaccord Genuity	Woeful Q2; price target to \$28 from \$39; prefer HTWR			
8/7/2014	Credit Suisse - North America	First Edition - US Alert: 08/07/14			
8/7/2014	Credit Suisse - North America	THOR: Downgrading to Neutral			
8/7/2014	JPMorgan	Thoratec Corp. : Market Headwinds & Competitive Pressures Combine to Take a Bite out of Guidance; Maintain Neutral			
8/7/2014	Leerink Partners LLC	2Q14: Long-Term Market Opportunity Intact Despite a Disappointing Quarter			
8/7/2014	Oppenheimer & Co., Inc.	Thrombosis Concerns Drive Sales Miss			
8/7/2014	Piper Jaffray	First Look at 2Q14 Results			
8/7/2014	Wells Fargo Securities, LLC	THOR: Q2 Miss And Guidance LoweredLowering Valuation Range			
8/13/2014	Thomson Reuters StreetEvents	THOR.OQ - Event Transcript of Thoratec Corp conference call, Aug. 13, 2014 / 2:00PM ET			
8/15/2014	Validea	Validea Guru Analysis Report for THOR. Analysis using Validea's interpretation of the published quantitative strategies of well-known Wall Street experts including Peter Lynch, Warren Buffett, Ben Graham and Ken Fisher, among others.			

Analyst Price Targets and Rating Actions Surrounding Event Dates

8/3/2011		Q2-	2011 Earnings Relea	se	
Firm	Price Target as of 8/2/2011	Price Target as of 8/8/2011	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
AURIGA	\$30.00	\$35.00	16.67%	hold	hold
Baird	\$29.00	\$29.00	0.00%	neutral	neutral
Barclays	\$39.00	\$39.00	0.00%	overwt/neutral	overwt/neutral
Barrington Research	\$36.00	\$36.00	0.00%	outperform	outperform
Boenning & Scattergood Inc	\$35.00	\$35.00	0.00%	outperform	outperform
Canaccord Genuity	\$35.00	\$38.00	8.57%	hold	hold
Credit Suisse	\$43.00	\$43.00	0.00%	outperform	outperform
EVA Dimensions				hold	hold
Gabelli & Co				hold	hold
GARP Research				neutral	neutral
J.P. Morgan	\$32.00	\$38.00	18.75%	neutral	neutral
Lazard Capital Markets	\$37.00	\$41.00	10.81%	buy	buy
Leerink Partners LLC				outperform	outperform
Madison Williams	\$50.00	\$50.00	0.00%	buy	buy
Morgan Keegan	\$35.00	\$35.00	0.00%	market perform	market perform
Oppenheimer & Co	\$40.00	\$40.00	0.00%	outperform	outperform
Piper Jaffray	\$27.00	\$27.00	0.00%	neutral	neutral
Raymond James				market perform	market perform
Rodman & Renshaw	\$42.00	\$42.00	0.00%	market outperform	market outperform
UBS	\$39.00	\$39.00	0.00%	buy	buy
Wedbush	\$27.00	\$33.00	22.22%	underperform	neutral
Weeden & Co	\$37.00			buy	
Wells Fargo Securities				outperform	outperform
WJB Capital Group	\$29.00	\$30.00	3.45%	hold	hold
Wunderlich Securities	\$35.00	\$35.00	0.00%	hold	hold
Total	\$35.63	\$36.94	3.68%		

11/1/2011	Q3-2011 Earnings Release					
Firm	Price Target as of 10/31/2011	Price Target as of 11/4/2011	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action	
AURIGA	\$35.00	\$35.00	0.00%	hold	hold	
Baird	\$29.00	\$30.00	3.45%	neutral	neutral	
Barclays	\$43.00	\$43.00	0.00%	overwt/neutral	overwt/neutral	
Barrington Research	\$36.00	\$36.00	0.00%	outperform	outperform	
Boenning & Scattergood Inc	\$35.00	\$35.00	0.00%	outperform	outperform	
Canaccord Genuity	\$36.00	\$34.00	-5.56%	hold	hold	
Credit Suisse	\$43.00	\$41.00	-4.65%	outperform	outperform	
EVA Dimensions				hold	buy	
Gabelli & Co				hold	hold	
GARP Research				neutral	neutral	
J.P. Morgan	\$38.00	\$33.00	-13.16%	neutral	neutral	
Lazard Capital Markets	\$41.00	\$37.00	-9.76%	buy	buy	
Leerink Partners LLC				outperform	outperform	
Morgan Keegan	\$35.00	\$32.00	-8.57%	market perform	market perform	
Oppenheimer & Co	\$40.00	\$40.00	0.00%	outperform	outperform	
Piper Jaffray	\$33.00	\$33.00	0.00%	neutral	neutral	
Raymond James				market perform	market perform	
Rodman & Renshaw	\$42.00	\$40.00	-4.76%	market outperform	market outperform	
UBS	\$39.00	\$39.00	0.00%	buy	buy	
Wedbush	\$33.00	\$31.00	-6.06%	neutral	neutral	
Wells Fargo Securities				outperform	outperform	
WJB Capital Group	\$30.00	\$30.00	0.00%	hold	hold	
Wunderlich Securities	\$35.00	\$35.00	0.00%	hold	hold	
Total	\$36.65	\$35.53	-3.05%			

Analyst Price Targets and Rating Actions Surrounding Event Dates

2/8/2012		Q4-2011 Earnings Release						
T2:	Price Target as of	Price Target as of	% Change in Price	Pre-Event Rating	Post-Event			
Firm	2/7/2012	2/13/2012	Target	Action	Rating Action			
AURIGA	\$35.00	\$35.00	0.00%	hold	hold			
Barclays	\$43.00	\$43.00	0.00%	overwt/neutral	overwt/neutral			
Barrington Research	\$36.00	\$38.00	5.56%	outperform	outperform			
Canaccord Genuity	\$31.00	\$33.00	6.45%	hold	hold			
Credit Suisse	\$41.00	\$41.00	0.00%	outperform	outperform			
EVA Dimensions				buy	buy			
Gabelli & Co				hold	hold			
GARP Research				neutral	neutral			
Goldman Sachs	\$33.00	\$34.00	3.03%	neutral/neutral	neutral/neutral			
J.P. Morgan	\$34.00	\$34.00	0.00%	neutral	neutral			
Lazard Capital Markets	\$37.00	\$37.00	0.00%	buy	buy			
Leerink Partners LLC				outperform	outperform			
Morgan Keegan	\$32.00	\$32.00	0.00%	market perform	market perform			
Oppenheimer & Co	\$40.00	\$40.00	0.00%	outperform	outperform			
Oscar Gruss & Son Inc	\$40.00	\$40.00	0.00%	hold	hold			
Piper Jaffray	\$33.00	\$37.00	12.12%	neutral	overweight			
Raymond James				market perform	market perform			
Rodman & Renshaw	\$40.00	\$42.00	5.00%	market outperform	market outperform			
ThinkEquity LLC	\$50.00	\$50.00	0.00%	buy	buy			
UBS	\$33.00	\$33.00	0.00%	neutral	neutral			
Wedbush	\$31.00	\$31.00	0.00%	neutral	neutral			
Wells Fargo Securities		_		market perform	market perform			
Wunderlich Securities	\$35.00	\$35.00	0.00%	hold	hold			
Total	\$36.71	\$37.35	1.76%					

5/1/2012	Q1-2012 Earnings Release						
Firm	Price Target as of 4/30/2012	Price Target as of 5/4/2012	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action		
AURIGA	\$35.00	\$35.00	0.00%	hold	hold		
Barclays	\$43.00	\$43.00	0.00%	overwt/neutral	overwt/neutral		
Barrington Research	\$38.00	\$38.00	0.00%	outperform	outperform		
Canaccord Genuity	\$36.00	\$38.00	5.56%	hold	hold		
Credit Suisse	\$41.00	\$41.00	0.00%	outperform	outperform		
EVA Dimensions				buy	buy		
Gabelli & Co				hold	hold		
GARP Research				neutral	neutral		
Goldman Sachs	\$36.00	\$37.00	2.78%	neutral/neutral	neutral/neutral		
J.P. Morgan	\$34.00	\$37.00	8.82%	neutral	neutral		
Lazard Capital Markets	\$38.00	\$44.00	15.79%	buy	buy		
Leerink Partners LLC				outperform	outperform		
Oppenheimer & Co	\$40.00	\$42.00	5.00%	outperform	outperform		
Oscar Gruss & Son Inc	\$42.00	\$42.00	0.00%	hold	hold		
Piper Jaffray	\$37.00	\$44.00	18.92%	overweight	overweight		
Raymond James				market perform	market perform		
Rodman & Renshaw	\$45.00	\$45.00	0.00%	market outperform	market outperform		
ThinkEquity LLC	\$50.00	\$50.00	0.00%	buy	buy		
UBS	\$35.00	\$35.00	0.00%	neutral	neutral		
Wedbush	\$31.00	\$33.00	6.45%	neutral	neutral		
Wells Fargo Securities				market perform	market perform		
Wunderlich Securities	\$35.00	\$35.00	0.00%	hold	hold		
Total	\$38.50	\$39.94	3.73%				

Analyst Price Targets and Rating Actions Surrounding Event Dates

8/1/2012		Q2-2012 Earnings Release						
Firm	Price Target as of 7/31/2012	Price Target as of 8/6/2012	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action			
Barclays	\$43.00	\$43.00	0.00%	overweight	overweight			
Barrington Research	\$38.00	\$36.00	-5.26%	outperform	outperform			
Canaccord Genuity	\$38.00	\$35.00	-7.89%	hold	hold			
Credit Suisse	\$41.00	\$41.00	0.00%	outperform	outperform			
EVA Dimensions				buy	buy			
Gabelli & Co				hold	hold			
GARP Research				neutral	neutral			
Goldman Sachs	\$45.00	\$45.00	0.00%	Buy/Neutral	Buy/Neutral			
J.P. Morgan	\$37.00	\$38.00	2.70%	neutral	neutral			
Lazard Capital Markets	\$44.00	\$44.00	0.00%	buy	buy			
Leerink Partners LLC				outperform	outperform			
Oppenheimer & Co	\$42.00	\$42.00	0.00%	outperform	outperform			
Oscar Gruss & Son Inc	\$42.00	\$42.00	0.00%	hold	hold			
Piper Jaffray	\$44.00	\$44.00	0.00%	overweight	overweight			
Raymond James				market perform	market perform			
ThinkEquity LLC	\$50.00	\$50.00	0.00%	buy	buy			
UBS	\$35.00	\$35.00	0.00%	neutral	neutral			
Wedbush	\$33.00	\$33.00	0.00%	neutral	neutral			
Wells Fargo Securities				market perform	market perform			
Wunderlich Securities	\$35.00	\$35.00	0.00%	hold	hold			
Total	\$40.50	\$40.21	-0.71%					

11/1/2012	Q3-2012 Earnings Release						
To!	Price Target as of	Price Target as of	% Change in Price	Pre-Event Rating	Post-Event		
Firm	10/31/2012	11/6/2012	Target	Action	Rating Action		
Barclays	\$43.00	\$43.00	0.00%	overweight	overweight		
Barrington Research	\$36.00	\$40.00	11.11%	outperform	outperform		
Canaccord Genuity	\$35.00	\$35.00	0.00%	hold	hold		
Credit Suisse	\$37.00	\$39.00	5.41%	underperform	underperform		
EVA Dimensions				overweight	overweight		
Gabelli & Co				hold	hold		
GARP Research				neutral	neutral		
Goldman Sachs	\$46.00	\$46.00	0.00%	Buy/Neutral	Buy/Neutral		
J.P. Morgan	\$38.00	\$39.00	2.63%	neutral	neutral		
Lazard Capital Markets	\$44.00	\$44.00	0.00%	buy	buy		
Leerink Partners LLC				outperform	outperform		
Northland Securities Inc	\$42.00	\$42.00	0.00%	outperform	outperform		
Oppenheimer & Co	\$42.00	\$42.00	0.00%	outperform	outperform		
Piper Jaffray	\$44.00	\$44.00	0.00%	overweight	overweight		
Raymond James				market perform	market perform		
UBS	\$39.00	\$41.00	5.13%	buy	buy		
Wallachbeth Capital LLC		\$37.00			hold		
Wedbush	\$33.00	\$35.00	6.06%	neutral	neutral		
Wells Fargo Securities				market perform	market perform		
Wunderlich Securities	\$35.00	\$35.00	0.00%	hold	hold		
Total	\$39.54	\$40.14	1.53%		_		

Analyst Price Targets and Rating Actions Surrounding Event Dates

2/5/2013		Q4-2012 Earnings Release						
Firm	Price Target as of 2/4/2013	Price Target as of 2/8/2013	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action			
Barclays	\$43.00	\$43.00	0.00%	overweight	overweight			
Barrington Research	\$40.00	\$40.00	0.00%	outperform	outperform			
Canaccord Genuity	\$38.00	\$37.00	-2.63%	hold	hold			
Credit Suisse	\$40.00	\$40.00	0.00%	underperform	underperform			
EVA Dimensions				overweight	buy			
Goldman Sachs	\$48.00	\$47.00	-2.08%	Buy/Neutral	Buy/Neutral			
J.P. Morgan	\$39.00	\$39.00	0.00%	neutral	neutral			
Lazard Capital Markets	\$44.00	\$44.00	0.00%	buy	buy			
Leerink Partners LLC				outperform	outperform			
Northland Securities Inc	\$42.00	\$35.00	-16.67%	outperform	market perform			
Oppenheimer & Co	\$42.00	\$43.00	2.38%	outperform	outperform			
Piper Jaffray	\$44.00	\$44.00	0.00%	overweight	overweight			
Raymond James				market perform	market perform			
UBS	\$41.00	\$41.00	0.00%	buy	buy			
Wallachbeth Capital LLC	\$37.00	\$37.00	0.00%	hold	hold			
Wedbush	\$36.00	\$36.00	0.00%	neutral	neutral			
Wells Fargo Securities		_	_	outperform	outperform			
Wunderlich Securities	\$35.00	\$38.00	8.57%	hold	hold			
Total	\$40.64	\$40.29	-0.88%					

5/2/2013		Q1-	2013 Earnings Relea	se	
Firm	Price Target as of 5/1/2013	Price Target as of 5/7/2013	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Barclays	\$43.00	\$43.00	0.00%	overweight	overweight
Barrington Research	\$40.00	\$40.00	0.00%	outperform	outperform
Canaccord Genuity	\$39.00	\$36.00	-7.69%	hold	hold
Credit Suisse	\$40.00	\$37.00	-7.50%	underperform	neutral
EVA Dimensions				buy	buy
Goldman Sachs	\$46.00	\$42.00	-8.70%	Buy/Neutral	Buy/Neutral
J.P. Morgan	\$37.00	\$32.00	-13.51%	neutral	neutral
Lazard Capital Markets	\$44.00	\$44.00	0.00%	buy	buy
Leerink Partners LLC				outperform	outperform
Northland Securities Inc	\$35.00	\$35.00	0.00%	market perform	market perform
Oppenheimer & Co	\$43.00	\$42.00	-2.33%	outperform	outperform
Piper Jaffray	\$44.00	\$44.00	0.00%	overweight	overweight
Raymond James				market perform	market perform
Sidoti & Company LLC	\$42.00	\$40.00	-4.76%	neutral	neutral
UBS	\$41.00	\$41.00	0.00%	buy	buy
Wallachbeth Capital LLC	\$37.00	\$37.00	0.00%	hold	hold
Wells Fargo Securities				outperform	outperform
William Blair & Co				market perform	market perform
Wunderlich Securities	\$38.00	\$38.00	0.00%	hold	hold
Total	\$40.64	\$39.36	-3.16%		

Analyst Price Targets and Rating Actions Surrounding Event Dates

7/31/2013	Q2-2013 Earnings Release				
TP:	Price Target as of	Price Target as of	% Change in Price	Pre-Event Rating	Post-Event
Firm	7/30/2013	8/5/2013	Target	Action	Rating Action
Barclays	\$43.00	\$43.00	0.00%	overweight	overweight
Barrington Research	\$40.00	\$40.00	0.00%	outperform	outperform
Canaccord Genuity	\$36.00	\$37.00	2.78%	hold	hold
Credit Suisse	\$35.00	\$35.00	0.00%	neutral	neutral
EVA Dimensions				buy	buy
Goldman Sachs	\$36.00	\$38.00	5.56%	neutral/neutral	neutral/neutral
J.P. Morgan	\$32.00	\$35.00	9.38%	neutral	neutral
Lazard Capital Markets				neutral	neutral
Leerink Partners LLC		\$38.00		outperform	outperform
Northland Securities Inc	\$35.00	\$42.00	20.00%	market perform	outperform
Oppenheimer & Co	\$40.00	\$41.00	2.50%	outperform	outperform
Piper Jaffray	\$44.00	\$44.00	0.00%	overweight	overweight
Raymond James	\$37.00	\$40.00	8.11%	outperform	outperform
Wallachbeth Capital LLC	\$37.00	\$37.00	0.00%	hold	hold
Wells Fargo Securities		_		outperform	outperform
William Blair & Co				market perform	market perform
Total	\$37.73	\$39.17	3.82%		

10/30/2013		Q3-	2013 Earnings Relea	ise	
Firm	Price Target as of 10/29/2013	Price Target as of 11/4/2013	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Barclays	\$43.00	\$45.00	4.65%	overweight	overweight
Barrington Research	\$40.00	\$49.00	22.50%	outperform	outperform
Canaccord Genuity	\$38.00	\$45.00	18.42%	hold	buy
Credit Suisse	\$43.00	\$43.00	0.00%	outperform	outperform
EVA Dimensions				buy	overweight
Goldman Sachs	\$46.00	\$46.00	0.00%	Buy/Neutral	Buy/Neutral
J.P. Morgan	\$35.00	\$37.00	5.71%	neutral	neutral
Lazard Capital Markets				neutral	
Leerink Partners LLC	\$45.00	\$45.00	0.00%	outperform	outperform
Northland Securities Inc	\$42.00	\$46.00	9.52%	outperform	outperform
Oppenheimer & Co	\$45.00	\$45.00	0.00%	outperform	outperform
Piper Jaffray	\$44.00	\$48.00	9.09%	overweight	overweight
Raymond James	\$42.00	\$46.00	9.52%	outperform	outperform
Wallachbeth Capital LLC	\$37.00	\$42.00	13.51%	hold	hold
Wells Fargo Securities				outperform	outperform
William Blair & Co				market perform	market perform
Total	\$41.67	\$44.75	7.40%		

Analyst Price Targets and Rating Actions Surrounding Event Dates

11/27/2013		Study Links	to HeartMate II to I	Blood Clots	
Firm	Price Target as of 11/26/2013	Price Target as of 12/3/2013	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Barclays	\$45.00	\$45.00	0.00%	overweight	overweight
Barrington Research	\$49.00	\$49.00	0.00%	outperform	outperform
Canaccord Genuity	\$45.00	\$45.00	0.00%	buy	buy
Credit Suisse	\$43.00	\$43.00	0.00%	outperform	outperform
EVA Dimensions				hold	overweight
Goldman Sachs	\$48.00	\$48.00	0.00%	Buy/Neutral	Buy/Neutral
J.P. Morgan	\$37.00	\$37.00	0.00%	neutral	neutral
Leerink Partners LLC	\$45.00	\$45.00	0.00%	outperform	outperform
Northland Securities Inc	\$46.00	\$46.00	0.00%	outperform	outperform
Oppenheimer & Co	\$45.00	\$45.00	0.00%	outperform	outperform
Piper Jaffray	\$48.00	\$48.00	0.00%	overweight	overweight
Raymond James	\$46.00	\$46.00	0.00%	outperform	outperform
Wallachbeth Capital LLC	\$42.00	\$42.00	0.00%	hold	hold
Wells Fargo Securities				outperform	outperform
William Blair & Co		_	_	market perform	market perform
Total	\$44.92	\$44.92	0.00%		

2/4/2014	Q4-2013 Earnings Release					
F	Price Target as of	Price Target as of	% Change in Price	Pre-Event Rating	Post-Event	
Firm	2/3/2014	2/7/2014	Target	Action	Rating Action	
Barclays	\$45.00	\$45.00	0.00%	overweight	overweight	
Barrington Research	\$49.00	\$49.00	0.00%	outperform	outperform	
Canaccord Genuity	\$45.00	\$40.00	-11.11%	buy	buy	
Credit Suisse	\$43.00	\$43.00	0.00%	outperform	outperform	
EVA Dimensions				buy	buy	
Goldman Sachs	\$47.00	\$45.00	-4.26%	Buy/Neutral	Buy/Neutral	
J.P. Morgan	\$37.00	\$37.00	0.00%	neutral	neutral	
Leerink Partners LLC	\$45.00	\$45.00	0.00%	outperform	outperform	
Northland Securities Inc	\$46.00	\$46.00	0.00%	outperform	outperform	
Oppenheimer & Co	\$45.00	\$45.00	0.00%	outperform	outperform	
Piper Jaffray	\$48.00	\$48.00	0.00%	overweight	overweight	
Raymond James	\$44.00	\$44.00	0.00%	outperform	outperform	
Wallachbeth Capital LLC	\$42.00	\$38.00	-9.52%	hold	hold	
Wells Fargo Securities				outperform	outperform	
William Blair & Co				market perform	market perform	
Total	\$44.67	\$43.75	-2.05%			

Analyst Price Targets and Rating Actions Surrounding Event Dates

5/6/2014		Q1-	2014 Earnings Relea	se	
T22	Price Target as of	Price Target as of	% Change in Price	Pre-Event Rating	Post-Event
Firm	5/5/2014	5/9/2014	Target	Action	Rating Action
Barclays	\$45.00	\$43.00	-4.44%	overweight	overweight
Barrington Research	\$49.00	\$49.00	0.00%	outperform	outperform
BTIG LLC	\$42.00	\$42.00	0.00%	buy	buy
Canaccord Genuity	\$40.00	\$37.00	-7.50%	buy	buy
Credit Suisse	\$40.00	\$40.00	0.00%	outperform	outperform
EVA Dimensions				buy	buy
Goldman Sachs	\$44.00	\$40.00	-9.09%	Buy/Neutral	Buy/Neutral
J.P. Morgan	\$37.00	\$31.00	-16.22%	neutral	neutral
Leerink Partners LLC	\$45.00	\$45.00	0.00%	outperform	outperform
Northland Securities Inc	\$46.00	\$46.00	0.00%	outperform	outperform
Oppenheimer & Co	\$45.00	\$41.00	-8.89%	outperform	outperform
Piper Jaffray	\$48.00	\$40.00	-16.67%	overweight	overweight
Raymond James	\$44.00	\$44.00	0.00%	outperform	outperform
Wallachbeth Capital LLC	\$38.00	\$38.00	0.00%	hold	hold
Wells Fargo Securities				outperform	outperform
William Blair & Co				market perform	market perform
Total	\$43.31	\$41.23	-4.80%		

8/6/2014		Q2-	2014 Earnings Relea	se	
Firm	Price Target as of 8/5/2014	Price Target as of 8/11/2014	% Change in Price Target	Pre-Event Rating Action	Post-Event Rating Action
Barclays	\$43.00	\$30.00	-30.23%	overweight	overweight
Barrington Research	\$49.00	\$40.00	-18.37%	outperform	outperform
BTIG LLC	\$42.00			buy	neutral
Canaccord Genuity	\$39.00	\$28.00	-28.21%	buy	buy
Credit Suisse	\$40.00	\$27.00	-32.50%	outperform	neutral
EVA Dimensions				buy	buy
Goldman Sachs	\$38.00	\$28.00	-26.32%	Buy/Neutral	neutral/neutral
J.P. Morgan	\$35.00	\$30.00	-14.29%	neutral	neutral
Leerink Partners LLC	\$45.00	\$35.00	-22.22%	outperform	outperform
Northland Securities Inc	\$46.00	\$26.00	-43.48%	outperform	market perform
Oppenheimer & Co	\$41.00	\$35.00	-14.63%	outperform	outperform
Piper Jaffray	\$40.00	\$40.00	0.00%	overweight	overweight
Raymond James	\$41.00	\$30.00	-26.83%	outperform	outperform
Wallachbeth Capital LLC	\$38.00	\$38.00	0.00%	hold	hold
Wells Fargo Securities				market perform	market perform
William Blair & Co				market perform	market perform
Total	\$41.31	\$32.25	-21.93%		

Thoratec Corp.

List of SEC Filings with Received Date during the Class Period

Count	Form Type	Company (Filer)	Received	Period
1	10-Q	THORATEC CORP	5/3/2011	4/2/2011
2	SC TO-I/A	THORATEC CORP	5/16/2011	
3	4	THORATEC CORP(FINNEY ELISHA W)	5/17/2011	5/13/2011
4	4	THORATEC CORP(DIMICK NEIL F)	5/20/2011	5/18/2011
5	4	THORATEC CORP(FINNEY ELISHA W)	5/23/2011	5/20/2011
6	4	THORATEC CORP(BURBACH GERHARD F)	5/23/2011	5/19/2011
7	4	THORATEC CORP(MULVENA DANIEL M)	5/26/2011	5/25/2011
8	4	THORATEC CORP(LAVIOLETTE PAUL A)	5/26/2011	5/25/2011
9	4	THORATEC CORP(GROSSMAN D KEITH)	5/26/2011	5/25/2011
10	4	THORATEC CORP(FINNEY ELISHA W)	5/26/2011	5/25/2011
11	4	THORATEC CORP(DIMICK NEIL F)	5/26/2011	5/25/2011
12	4	THORATEC CORP(COLLIS STEVEN H)	5/26/2011	5/25/2011
13	4	THORATEC CORP(COLE J DANIEL)	5/26/2011	5/25/2011
14	8-K	THORATEC CORP	5/26/2011	5/25/2011
15	8-K	THORATEC CORP	6/10/2011	6/7/2011
16	SC 13D	THORATEC CORP(FEINBERG LARRY N)	6/16/2011	5, 7, 2011
17	3	THORATEC CORP(OULMAN ROXANNE)	6/17/2011	6/10/2011
18	4	THORATEC CORP(FINNEY ELISHA W)	6/21/2011	6/20/2011
19	SC 13G	THORATEC CORP(CADIAN CAPITAL MANAGEMENT, LP) (CADIAN CAPITAL	6/23/2011	0/20/2011
20	8-K	THORATEC CORP	8/3/2011	8/3/2011
21	10-O	THORATEC CORP	8/4/2011	7/2/2011
22	S-8	THORATEC CORP	8/22/2011	1/2/2011
23	4	THORATEC CORP(COLLIS STEVEN H)	8/31/2011	8/30/2011
24	4	THORATEC CORP(COLE J DANIEL)	9/2/2011	8/31/2011
25	4	THORATEC CORP(BURBACH GERHARD F)	11/1/2011	10/28/2011
26	8-K	THORATEC CORP	11/1/2011	11/1/2011
27	8-K	THORATEC CORP	11/3/2011	11/1/2011
28	10-Q	THORATEC CORP	11/7/2011	10/1/2011
29	SC 13D/A	THORATEC CORP(FEINBERG LARRY N)	12/5/2011	10/1/2011
30	8-K	THORATEC CORP	12/16/2011	12/13/2011
31	SC 13D/A	THORATEC CORP(FEINBERG LARRY N)	12/19/2011	12/13/2011
32	8-K	THORATEC CORP	12/22/2011	12/19/2011
33	4	THORATEC CORP(HAWKINS WILLIAM A)	1/4/2012	1/1/2012
34	3	THORATEC CORP(HAWKINS WILLIAM A)	1/4/2012	1/1/2012
35	8-K	THORATEC CORP	1/12/2012	1/4/2012
36	8-K	THORATEC CORP	1/25/2012	1/25/2012
37	NO ACT	THORATEC CORP	2/7/2012	1/25/2012
38	8-K	THORATEC CORP	2/8/2012	2/8/2012
39	SC 13G	THORATEC CORP(VANGUARD GROUP INC)	2/9/2012	
40	SC 13G/A	THORATEC CORP(CAPITAL WORLD INVESTORS)	2/10/2012	
41	SC 13G/A	THORATEC CORP(BLACKROCK INC.)	2/13/2012	
42	SC 13G/A	THORATEC CORP(CADIAN CAPITAL MANAGEMENT, LP) (CADIAN CAPITAL	2/14/2012	
43	10-K	THORATEC CORP	2/21/2012	12/31/2011
44	4	THORATEC CORP(OULMAN ROXANNE)	2/29/2012	2/27/2012
45	4	THORATEC CORP(LEHMAN DAVID AARON)	2/29/2012	2/27/2012
46	4	THORATEC CORP(BURBACH GERHARD F)	2/29/2012	2/27/2012
47	4	THORATEC CORP(OULMAN ROXANNE)	3/5/2012	3/1/2012
48	4	THORATEC CORP(LEHMAN DAVID AARON)	3/5/2012	3/1/2012
49	4	THORATEC CORP(BURBACH GERHARD F)	3/5/2012	3/1/2012

Thoratec Corp.

List of SEC Filings with Received Date during the Class Period

Count	Form Type	Company (Filer)	Received	Period
50	8-K	THORATEC CORP	3/9/2012	3/8/2012
51	4	THORATEC CORP(OULMAN ROXANNE)	3/12/2012	3/9/2012
52	4	THORATEC CORP(LEHMAN DAVID AARON)	3/12/2012	3/9/2012
53	4	THORATEC CORP(BURBACH GERHARD F)	3/12/2012	3/9/2012
54	DEFA14A	THORATEC CORP	4/9/2012	
55	DEF 14A	THORATEC CORP	4/9/2012	5/23/2012
56	8-K	THORATEC CORP	5/1/2012	5/1/2012
57	4	THORATEC CORP(OULMAN ROXANNE)	5/7/2012	5/3/2012
58	4	THORATEC CORP(BURBACH GERHARD F)	5/7/2012	5/3/2012
59	10-Q	THORATEC CORP	5/8/2012	3/31/2012
60	4	THORATEC CORP(COLE J DANIEL)	5/11/2012	5/9/2012
61	4	THORATEC CORP(FINNEY ELISHA W)	5/16/2012	5/14/2012
62	4	THORATEC CORP(DIMICK NEIL F)	5/16/2012	5/14/2012
63	4	THORATEC CORP(FINNEY ELISHA W)	5/23/2012	5/21/2012
64	4	THORATEC CORP(DIMICK NEIL F)	5/23/2012	5/21/2012
65	4	THORATEC CORP(MULVENA DANIEL M)	5/25/2012	5/23/2012
66	4	THORATEC CORP(LAVIOLETTE PAUL A)	5/25/2012	5/23/2012
67	4	THORATEC CORP(HAWKINS WILLIAM A)	5/25/2012	5/23/2012
68	4	THORATEC CORP(GROSSMAN D KEITH)	5/25/2012	5/23/2012
69	4	THORATEC CORP(FINNEY ELISHA W)	5/25/2012	5/23/2012
70	4	THORATEC CORP(DIMICK NEIL F)	5/25/2012	5/23/2012
71	4	THORATEC CORP(COLLIS STEVEN H)	5/25/2012	5/23/2012
72	4	THORATEC CORP(COLE J DANIEL)	5/25/2012	5/23/2012
73	8-K	THORATEC CORP	5/29/2012	5/23/2012
74	SC 13D/A	THORATEC CORP(FEINBERG LARRY N)	5/30/2012	
75	4	THORATEC CORP(OULMAN ROXANNE)	6/19/2012	6/15/2012
76	4	THORATEC CORP(BURBACH GERHARD F)	7/5/2012	7/2/2012
77	4	THORATEC CORP(BURBACH GERHARD F)	7/19/2012	7/17/2012
78	4	THORATEC CORP(LEHMAN DAVID AARON)	7/19/2012	7/17/2012
79	S-8	THORATEC CORP	7/25/2012	
80	8-K	THORATEC CORP	8/1/2012	8/1/2012
81	10-Q	THORATEC CORP	8/2/2012	6/30/2012
82	4	THORATEC CORP(OULMAN ROXANNE)	9/10/2012	9/6/2012
83	4	THORATEC CORP(LEHMAN DAVID AARON)	9/11/2012	9/7/2012
84	4	THORATEC CORP(LEHMAN DAVID AARON)	10/9/2012	10/4/2012
85	8-K	THORATEC CORP	10/11/2012	10/10/2012
86	4	THORATEC CORP(HARRIS TAYLOR C.)	10/17/2012	10/15/2012
87	3	THORATEC CORP(HARRIS TAYLOR C.)	10/17/2012	10/10/2012
88	8-K	THORATEC CORP	11/1/2012	11/1/2012
89	10-Q	THORATEC CORP	11/2/2012	9/29/2012
90	4	THORATEC CORP(BURBACH GERHARD F)	11/6/2012	11/2/2012
91	4	THORATEC CORP(BURBACH GERHARD F)	11/27/2012	11/23/2012
92	4	THORATEC CORP(MULVENA DANIEL M)	11/28/2012	11/28/2012
93	4	THORATEC CORP(COLE J DANIEL)	11/28/2012	11/27/2012
94	4	THORATEC CORP(GROSSMAN D KEITH)	12/10/2012	12/6/2012
95	4	THORATEC CORP(LEHMAN DAVID AARON)	12/31/2012	12/27/2012
96	4	THORATEC CORP(LEHMAN DAVID AARON)	1/4/2013	1/2/2013
97	8-K	THORATEC CORP	2/5/2013	2/5/2013
98	SC 13G/A	THORATEC CORP(CADIAN CAPITAL MANAGEMENT, LP) (CADIAN CAPITA	2/5/2013	

Thoratec Corp.

List of SEC Filings with Received Date during the Class Period

Count	Form Type	Company (Filer)	Received	Period
99	SC 13G/A	THORATEC CORP(BLACKROCK INC.)	2/8/2013	
100	5	THORATEC CORP(COLLIS STEVEN H)	2/11/2013	12/29/2012
101	SC 13G/A	THORATEC CORP(VANGUARD GROUP INC)	2/11/2013	
102	10-K	THORATEC CORP	2/20/2013	12/29/2012
103	4	THORATEC CORP(LEHMAN DAVID AARON)	2/27/2013	2/25/2013
104	4	THORATEC CORP(BURBACH GERHARD F)	2/27/2013	2/25/2013
105	4	THORATEC CORP(LEHMAN DAVID AARON)	3/5/2013	3/1/2013
106	4	THORATEC CORP(HARRIS TAYLOR C.)	3/5/2013	3/1/2013
107	4	THORATEC CORP(BURBACH GERHARD F)	3/5/2013	3/1/2013
108	8-K	THORATEC CORP	3/8/2013	3/5/2013
109	4	THORATEC CORP(LEHMAN DAVID AARON)	3/11/2013	3/7/2013
110	4	THORATEC CORP(HARRIS TAYLOR C.)	3/11/2013	3/7/2013
111	4	THORATEC CORP(BURBACH GERHARD F)	3/11/2013	3/7/2013
112	SC 13G/A	THORATEC CORP(BLACKROCK INC.)	3/11/2013	
113	4	THORATEC CORP(HARRIS TAYLOR C.)	3/19/2013	3/15/2013
114	DEFA14A	THORATEC CORP	4/9/2013	
115	DEF 14A	THORATEC CORP	4/9/2013	5/22/2013
116	8-K	THORATEC CORP	5/2/2013	5/2/2013
117	10-Q	THORATEC CORP	5/3/2013	3/30/2013
118	4	THORATEC CORP(FINNEY ELISHA W)	5/14/2013	5/13/2013
119	4	THORATEC CORP(DIMICK NEIL F)	5/14/2013	5/13/2013
120	4	THORATEC CORP(LEHMAN DAVID AARON)	5/17/2013	5/15/2013
121	4	THORATEC CORP(FINNEY ELISHA W)	5/21/2013	5/20/2013
122	4	THORATEC CORP(DIMICK NEIL F)	5/22/2013	5/20/2013
123	4	THORATEC CORP(MULVENA DANIEL M)	5/23/2013	5/22/2013
124	4	THORATEC CORP(LAVIOLETTE PAUL A)	5/23/2013	5/22/2013
125	4	THORATEC CORP(HAWKINS WILLIAM A)	5/23/2013	5/22/2013
126	4	THORATEC CORP(GROSSMAN D KEITH)	5/23/2013	5/22/2013
127	4	THORATEC CORP(COLLIS STEVEN H)	5/23/2013	5/22/2013
128	4	THORATEC CORP(COLE J DANIEL)	5/23/2013	5/22/2013
129	4	THORATEC CORP(SCHERMERHORN TODD C)	5/23/2013	5/22/2013
130	3	THORATEC CORP(SCHERMERHORN TODD C)	5/23/2013	5/22/2013
131	8-K	THORATEC CORP	5/24/2013	5/22/2013
132	4	THORATEC CORP(DIMICK NEIL F)	5/29/2013	5/28/2013
133	4	THORATEC CORP(HARRIS TAYLOR C.)	6/18/2013	6/17/2013
134	8-K	THORATEC CORP	7/1/2013	6/30/2013
135	8-K	THORATEC CORP	7/31/2013	7/31/2013
136	10-Q	THORATEC CORP	8/1/2013	6/29/2013
137	8-K/A	THORATEC CORP	9/5/2013	9/5/2013
138	4	THORATEC CORP(HARRIS TAYLOR C.)	10/15/2013	10/15/2013
139	4	THORATEC CORP(LEHMAN DAVID AARON)	10/15/2013	10/11/2013
140	4	THORATEC CORP(BURBACH GERHARD F)	10/15/2013	10/10/2013
141	4	THORATEC CORP(BURBACH GERHARD F)	10/17/2013	10/16/2013
142	4	THORATEC CORP(BURBACH GERHARD F)	10/29/2013	10/25/2013
143	8-K	THORATEC CORP	10/30/2013	10/30/2013
144	10-Q	THORATEC CORP	10/31/2013	9/28/2013
145	4	THORATEC CORP(MULVENA DANIEL M)	11/4/2013	10/31/2013
146	4	THORATEC CORP(BURBACH GERHARD F)	11/4/2013	10/31/2013
147	4	THORATEC CORP(BURBACH GERHARD F)	11/13/2013	11/11/2013

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List of SEC Filings with Received Date during the Class Period

Count	Form Type	Company (Filer)	Received	Period
148	4	THORATEC CORP(BURBACH GERHARD F)	11/18/2013	11/14/2013
149	4	THORATEC CORP(BURBACH GERHARD F)	12/12/2013	12/10/2013
150	4	THORATEC CORP(LAVIOLETTE PAUL A)	1/7/2014	1/2/2014
151	5	THORATEC CORP(GROSSMAN D KEITH)	1/10/2014	5/28/2013
152	SC 13G/A	THORATEC CORP(BLACKROCK INC.)	1/10/2014	
153	4	THORATEC CORP(BURBACH GERHARD F)	1/14/2014	1/10/2014
154	4	THORATEC CORP(BURBACH GERHARD F)	1/17/2014	1/15/2014
155	SC 13G	THORATEC CORP(EAGLE ASSET MANAGEMENT INC)	1/28/2014	
156	8-K	THORATEC CORP	2/4/2014	2/4/2014
157	4	THORATEC CORP(BURBACH GERHARD F)	2/11/2014	2/10/2014
158	SC 13G/A	THORATEC CORP(VANGUARD GROUP INC)	2/12/2014	
159	4	THORATEC CORP(BURBACH GERHARD F)	2/14/2014	2/12/2014
160	SC 13G/A	THORATEC CORP(CADIAN CAPITAL MANAGEMENT, LP)	2/14/2014	
161	10-K	THORATEC CORP	2/18/2014	12/28/2013
162	4	THORATEC CORP(BURBACH GERHARD F)	3/3/2014	2/27/2014
163	8-K	THORATEC CORP	3/4/2014	3/4/2014
164	4	THORATEC CORP(HARRIS TAYLOR C.)	3/5/2014	3/3/2014
165	4	THORATEC CORP(LEHMAN DAVID AARON)	3/5/2014	3/3/2014
166	4	THORATEC CORP(BURBACH GERHARD F)	3/11/2014	3/7/2014
167	4	THORATEC CORP(HARRIS TAYLOR C.)	3/11/2014	3/7/2014
168	4	THORATEC CORP(LEHMAN DAVID AARON)	3/11/2014	3/7/2014
169	4	THORATEC CORP(LEHMAN DAVID AARON)	3/17/2014	3/17/2014
170	4	THORATEC CORP(HARRIS TAYLOR C.)	3/17/2014	3/17/2014
171	4	THORATEC CORP(BURBACH GERHARD F)	3/17/2014	3/17/2014
172	8-K	THORATEC CORP	3/18/2014	3/13/2014
173	PRE 14A	THORATEC CORP	3/21/2014	5/21/2014
174	8-K	THORATEC CORP	3/27/2014	3/27/2014
175	DEFA14A	THORATEC CORP	4/9/2014	
176	DEF 14A	THORATEC CORP	4/9/2014	5/21/2014
177	8-K	THORATEC CORP	5/6/2014	5/6/2014
178	10-Q	THORATEC CORP	5/7/2014	3/29/2014
179	DEFA14A	THORATEC CORP	5/12/2014	
180	4	THORATEC CORP(LAVIOLETTE PAUL A)	5/15/2014	5/15/2014
181	4	THORATEC CORP(DIMICK NEIL F)	5/21/2014	5/19/2014
182	4	THORATEC CORP(SCHERMERHORN TODD C)	5/23/2014	5/21/2014
183	4	THORATEC CORP(LAVIOLETTE PAUL A)	5/23/2014	5/21/2014
184	4	THORATEC CORP(HAWKINS WILLIAM A)	5/23/2014	5/21/2014
185	4	THORATEC CORP(GROSSMAN D KEITH)	5/23/2014	5/21/2014
186	4	THORATEC CORP(COLLIS STEVEN H)	5/23/2014	5/21/2014
187	4	THORATEC CORP(COLE J DANIEL)	5/23/2014	5/21/2014
188	4	THORATEC CORP(MARSH MARTHA H.)	5/23/2014	5/21/2014
189	3	THORATEC CORP(MARSH MARTHA H.)	5/23/2014	5/21/2014
190	4	THORATEC CORP(DIMICK NEIL F)	5/27/2014	5/22/2014
191	4	THORATEC CORP(PADMANABHAN VASANT)	5/27/2014	5/22/2014
192	3	THORATEC CORP(PADMANABHAN VASANT)	5/27/2014	5/22/2014
193	8-K	THORATEC CORP	5/27/2014	5/21/2014
194	SD	THORATEC CORP	6/2/2014	
195	4	THORATEC CORP(PADMANABHAN VASANT)	6/18/2014	6/16/2014
196	4	THORATEC CORP(HARRIS TAYLOR C.)	6/18/2014	6/16/2014

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Exhibit 6

Thoratec Corp.

List of SEC Filings with Received Date during the Class Period

Count	Form Type	Company (Filer)	Received	Period
197	8-K	THORATEC CORP	7/2/2014	7/2/2014
198	8-K	THORATEC CORP	8/6/2014	8/6/2014
199	10-Q	THORATEC CORP	8/7/2014	6/28/2014
200	S-8	THORATEC CORP	8/11/2014	

Thoratec Corp.

Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
1	MSCO	MORGAN STANLEY & CO., INCORPOR	36,813,423
2	FBCO	CREDIT SUISSE FIRST BOSTON LLC	28,365,748
3	LEHM	BARCLAYS CAPITAL INC.	24,086,058
4	GSCO	GOLDMAN SACHS	20,162,664
5	MLCO	MERRILL LYNCH	17,816,149
6	JPMS	J.P. MORGAN SECURITIES INC.	16,681,035
7	UBSS	UBS SECURITIES LLC.	12,717,646
8	WEDB	WEDBUSH MORGAN SECURITIES INC.	10,916,912
9	ETCC	ELECTRONIC TRANSACTION CLEARING, INC.	10,370,102
10	INCA	INSTINET CORPORATION	9,966,806
11	TRBT	TRADEBOT SYSTEMS, INC.	9,499,060
12	DBAB	DEUTSCHE BANK SECURITIES INC.	8,693,019
13	SBSH	CITIGROUP GLOBAL MARKETS INC.	7,276,189
14	NITP	VIRTU AMERICAS LLC	5,915,092
15	NITE	VIRTU AMERICAS LLC	3,940,324
16	PIPR	PIPER JAFFRAY & CO.	3,655,777
17	NMRA	NOMURA SECURITIES INTERNATIONA	2,555,353
18	INAT	INSTINET, LLC	2,512,215
19	MSMP	MORGAN STANLEY & CO. LLC	2,476,533
20	WMIT	WEDBUSH SECURITIES INC.	2,109,366
21	IBKR	INTERACTIVE BROKERS LLC	2,047,666
22	DBUL	DEUTSCHE BANK SECURITIES INC.	1,739,727
23	INML	INSTINET, LLC	1,671,583
24	JEFF	JEFFERIES & COMPANY, INC.	1,630,375
25	FMAT	FIMAT USA, INC.	1,579,990
26	WEXX	WOLVERINE EXECUTION SERVICES,	1,340,396
27	WMFO	WEDBUSH SECURITIES INC.	1,276,033
28	WCHV	WELLS FARGO SECURITIES, LLC	1,214,427
29	BERN	SANFORD C. BERNSTEIN AND CO. I	1,165,958
30	FQLS	QUANTLAB SECURITIES LP	1,056,759
31	FRET	FOX RIVER EXECUTION TEHNOLOGY, LLC	968,756
32	TMBR	TIMBER HILL LLC	965,626
33	INJX	INSTINET, LLC	877,871
34	GESX	GETCO EXECUTION SERVICES LLC.	761,187
35	WMLW	WEDBUSH SECURITIES INC.	752,217
36	PERT	PERSHING TRADING COMPANY L.P.	655,171
37	SHMR	O'CONNOR & COMPANY LLC	653,562
38	MKMP	MKM PARTNERS	651,727
39	PFDU	PENSON FINANCIAL SERVICES, INC.	644,159
40	WMSF	WEDBUSH SECURITIES INC.	635,181
41	STFL	STIFEL NICOLAUS	628,443
42	LBCE	WEDBUSH SECURITIES INC.	615,129
43	MLTD	MILLENCO	607,301
44	LAZA	LAZARD CAPITAL MARKETS	530,416
45	ITGI	ITG INC.	474,512
46	LEER	LEERINK SWANN & CO., INC.	472,260
47	NFSC	NATIONAL FINANCIAL SERVICES LL	388,775
48	WMLP	WEDBUSH SECURITIES INC.	362,343
49	SUSQ	SUSQUEHANNA CAPITAL GROUP	334,870
50	WMDR	WEDBUSH SECURITIES INC.	315,447

Thoratec Corp.

Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
51	IEXG	INVESTORS EXCHANGE	297,040
52	ATMC	COWEN CAPITAL LLC	280,687
53	RBCM	RBC CAPITAL MARKETS	260,131
54	SPTD	STOCK USA INVESTMENTS	257,364
55	WMHY		257,326
56	DRTR	DART EXECUTIONS, LLC	225,998
57	MAPL	MAPLE SECURITIES U.S.A. INC.	219,085
58	LSCI	LEK SECURITIES CORPORATION	216,873
59	WDSB	HELFANT GROUP, INC.	212,579
60	LIWE	LIME BROKERAGE LLC	208,554
61	COWN	COWEN & CO., LLC	205,789
62	CRAG	CREDIT AGRICOLE INDOSUEZ CHEUV	203,955
63	FOXB		193,576
64	FCCP	FIRST CLEARING, LLC	188,042
65	WMLB	WEDBUSH SECURITIES INC.	184,955
66	GLPS	ELECTRONIC BROKERAGE SYSTEMS, LLC	184,664
67	WMAV	WEDBUSH SECURITIES INC.	180,596
68	LIME	LIME BROKERAGE LLC	179,440
69	CPEX	CLEARPOOL EXECUTION SERVICES	163,485
70	ADAM	CANACCORD GENUITY INC	155,853
71	MLUA		155,119
72	PFAL	PENSON FINANCIAL SERVICES, INC.	154,146
73	ATDF	AUTOMATED TRADING DESK FINANCIAL SERVICES, LLC	152,527
74	WMGP	WEDBUSH SECURITIES INC	151,659
75	BNPX	BNP PARIBAS SECURITIES CORP.	150,055
76	VPRB		149,960
77	SSIC	SCOTTRADE, INC.	146,616
78	LIJP	LIME BROKERAGE LLC	144,193
79	CANT	CANTOR FITZGERALD & CO.	140,672
80	DEGS	DART EXECUTIONS, LLC	128,308
81	DAPL	DIRECT ACCESS PARTNERS LLC	127,702
82	PFDY	PENSON FINANCIAL SERVICES, INC.	127,381
83	WMTY	WEDBUSH SECURITIES INC.	127,100
84	OPCO	OPPENHEIMER & CO. INC.	126,540
85	FNYS	FIRST NEW YORK SECURITIES CO	126,189
86	CTLR	CUTLER GROUP, LP	119,446
87	FOMA	AMERITRADE, INC.	112,835
88	SEGB	UNNAMED>FITTH A DECLEAR DINGLES	111,652
89	ETRS	E*TRADE CLEARING LLC	105,849
90	PRRX	RIVER CROSS SECURITES, LLLP	103,756
91	NQRB	BRUT, LLC	97,344
92	BKMM	BNY MELLON CAPITAL MARKETS, LLC	96,798
93	WMVG	WEDBUSH SECURITIES INC.	94,189
94	ETBP	ELECTRONIC TRANSACTION CLEARING, INC.	83,780
95	DAPG	DIRECT ACCESS PARTNERS LLC	82,341
96	MSPD	MORGAN STANLEY & CO. LLC	81,558
97	WBPX	WHITE BAY PT LLC	81,027
98	WMLM	WEDBUSH SECURITIES INC.	78,896

Thoratec Corp.

Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
99	BAYT	BAYPOINT TRADING LLC	77,882
100	BMOC	BMO CAPITAL MARKETS	74,037
101	CIST	CAPITAL INSTITUTIONAL SERVICES	73,717
102	PFOB		72,436
103	RASG		67,083
104	MWCO	MADISON WILLIAMS AND COMPANY	66,872
105	MWCC	MONNESS CRESPI HARDT AND CO. I	65,561
106	RHCO	SUNTRUST CAPITAL MARKETS, INC.	63,447
107	ETBG	ELECTRONIC TRANSACTION CLEARING, INC.	59,532
108	BARD	ROBERT W. BAIRD & CO. INCORPOR	58,770
109	NEED	NEEDHAM AND CO.	55,752
110	ECUT	BNY BROKERAGE INC.	55,674
111	ETBD	ELECTRONIC TRANSACTION CLEARING, INC.	55,236
112	RBSG		53,763
113	SUBE	SUBERT SECURITIES INC.	52,392
114	WBLR	WILLIAM BLAIR & COMPANY L.L.C.	51,351
115	PLTA		49,694
116	LSTE	LIGHTSPEED TRADING LLC	47,383
117	SCTR	SCOUT TRADING LLC	44,512
118	ETAS	ELECTRONIC TRANSACTION CLEARING, INC.	44,212
119	WEXM	WOLVERINE EXECUTION SERVICES, LLC	43,110
120	FBRC	FRIEDMAN, BILLINGS, RAMSEY & C	43,048
121	EGOT		42,871
122	DBAE	DEUTSCHE BANK SECURITIES INC.	41,889
123	PFEC	PENSON FINANCIAL SERVICES, INC.	41,664
124	JMPT	JUMP TRADING, LLC	40,489
125	NORT	NORTHLAND SECURITIES, INC.	38,708
126	BTIG	BTIG, LLC	37,103
127	THNK	THINKEQUITY PARTNERS LLC	36,364
128	AABA		35,841
129	ANDZ	ASSENT LLC	33,869
130	BZYD	GOLDMAN SACHS EXECUTION & CLEARING, L.P.	33,328
131	SPHN	STEPHENS INC.	31,639
132	HDSN	HUDSON SECURITIES	30,670
133	BBOX		30,574
134	LTCO	LADENBURG, THALMANN & CO. INC.	29,357
135	BZWW	GOLDMAN SACHS EXECUTION & CLEARING, L.P.	29,278
136	WMLT	WEDBUSH SECURITIES INC.	28,183
137	BLOK	PIPELINE TRADING SYSTEMS LLC	26,795
138	MLUC		25,612
139	BNPB	BNP PARIBAS SECURITIES CORP.	24,467
140	BELZ	ELECTRONIC BROKERAGE SYSTEMS I	24,384

Thoratec Corp.

Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
141	ETBV		23,055
142	SWST	SOUTHWEST SECURITIES, INC.	22,973
143	FILL	TRADESTATION SECURITIES, INC.	22,207
144	BAQP		22,000
145	PDQM	PDQ ATS. INC.	21,791
146	SJLS	SJ LEVINSON LLC	21,362
147	CHLM	CRAIG-HALLUM CAPITAL GROUP LLC	20,194
148	FFSI	FIRSTRADE SECURITIES INC.	19,860
149	SUFI	SUSQUEHANNA FINANCIAL GROUP, I	19,474
150	DCHF	DART EXECUTIONS, LLC	19,297
151	CTDL	<unnamed></unnamed>	18,453
152	CNFR	CONIFER SECURITIES LLC	17,634
153	AKAM	JUMP TRADING, LLC	17,215
154	LSSU		16,868
155	WSCS	WS CLEARING INC.	16,437
156	MISM	MISMI, INC.	16,094
157	SLON	SLOAN SECURITIES CORP	16,000
158	MOKE	MORGAN KEEGAN	15,511
159	HPPO	POTAMUS TRADING, LLC	14,976
160	GMOR	LIGHTSPEED TRADING, LLC	14,924
161	HAPX	HAP TRADING, LLC	14,651
162	GAUS	THE GAUSSIAN GROUP, LLC	14,574
163	QRCC	US CLEARING CORP DIV OF FLEET	14,553
164	ROTH	ROTH CAPITAL PARTNERS, LLC	14,500
165	ETAY	ELECTRONIC TRANSACTION CLEARING, INC.	14,404
166	AVON	AVONDALE PARTNERS, LLC	13,500
167	BCAP	BARCLAYS CAPITAL INC.	13,500
168	JONE	JONES AND ASSOCIATES INC.	13,260
169	NPNT	NORTHPOINT TRADING PARTNERS, LLC	12,779
170	WMFC	WEDBUSH SECURITIES INC.	11,677
171	XBLA	XAMBALA CAPITAL, LLC	11,400
172	INTU		11,024
173	PFNV		10,434
174	PFDX	PENSON FINANCIAL SERVICES, INC.	10,400
175	NBSI	HARRIS NESBITT CORP.	10,200
176	EDFM	MAN SECURITIES INC.	10,117
177	WSGG		9,900
178	TORC	JERICHO INVESTMENTS, LLC	9,684
179	WEED	WEEDEN & CO.L.P.	9,573
180	MLUB		9,428
181	RODM	RODMAN AND RENSHAW LLC	9,122
182	MERL	MERLIN SECURITIES, LLC	8,503

Thoratec Corp.

Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
183	KRSH	KERSHNER SECURITIES, LLC	8,502
184	ETBT	ELECTRONIC TRANSACTION CLEARING, INC.	8,496
185	BMUR	BREAN MURRAY AND CO. INC.	8,351
186	MLRM		8,051
187	TRWN	T.R. WINSTON & COMPANY, LLC	8,000
188	DALE	ANCORA SECURITIES INC.	7,967
189	DAWA	DAIWA SECURITIES AMERICA INC.	7,200
190	TNPS	LIGHTSPEED TRADING, LLC	6,749
191	JANY	JANNEY MONTGOMERY SCOTT LLC	6,583
192	GUGS	GUGGENHEIM SECURITIES, LLC	5,879
193	CHAS	CHARLES SCHWAB AND CO. INC.	5,800
194	JSSF	JMP SECURITIES LLC	5,700
195	ETBL	ELECTRONIC TRANSACTION CLEARING, INC.	5,602
196	SURG	SURGE TRADING INC	5,522
197	AFCO	ALBERT FRIED AND CO.	5,300
198	HWLS	M.S. HOWELLS & CO.	5,260
199	SPDR	SPEEDROUTE LLC	5,232
200	MZHO	MIZUHO SECURITIES USA INC.	5,152
201	EWTT	VIRTU AMERICAS LLC	5,103
202	PCAP	PREFERREDTRADE, INC.	5,000
203	PEEL		4,871
204	DRKW	DRESDNER KLEINWORT	4,555
205	VIEW	VIEWTRADE SECURITIES, INC.	4,372
206	LOUI	LOUIS CAPITAL MARKETS, LLC	4,239
207	WIAI		4,200
208	RGEL		4,025
209	DART	DALLAS RESEARCH & TRADING, INC.	3,950
210	KING	C. L. KING & ASSOCIATES, INC.	3,870
211	GRIS	THE GRISWOLD COMPANY, INCORPOR	3,779
212	GZML		3,511
213	WMQS	WEDBUSH SECURITIES INC.	3,505
214	GAME	GLOBAL-AMERICAN INVESTMENTS, I	3,501
215	WSMS		3,465
216	STFC	STUART FRANKEL & CO. INCORPORA	3,400
217	PFED	PENSON FINANCIAL SERVICES, INC.	3,200
218	CSTI	COLLINS STEWART INC.	3,130
219	HCAT	HUNTER CAPITAL MARKETS, LLC	2,946
220	RAJA	RAYMOND JAMES AND ASSOCIATES I	2,846
221	SPCS	LEGEND SECURITIES, INC.	2,800
222	VRTU	VIRTU AMERICAS LLC	2,651
223	DRWS	DRW SECURITIES, L.L.C.	2,569
224	MAXM	MAXIM GROUP, LLC	2,054

Thoratec Corp.

Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
225	CMPT	COMPASS POINT RESEARCH & TRADI	2,000
226	TIAD	TRIAD SECURITIES CORP	2,000
227	LNRT		1,866
228	PFTM		1,783
229	EROM	EROOM SECURITIES L.L.C.	1,296
230	TTTA		1,200
231	WUND	WUNDERLICH SECURITIES INC.	1,190
232	IAEC	ISRAEL A. ENGLANDER	1,000
233	TDSC	TRACK DATA SECURITIES CORP.	1,000
234	TIAC		1,000
235	GZMN		934
236	ETBF		900
237	SALI	STERNE AGEE AND LEACH INC.	900
238	BNCH	THE BENCHMARK COMPANY, LLC	800
239	PFNY		800
240	SIMA		795
241	WBLL	WEDBUSH SECURITIES INC.	697
242	ANOS	ABEL NOSER CORP.	655
243	NTRC	THE NORTHERN TRUST COMPANY	612
244	FMCO	FIRST MANHATTAN CO	600
245	BBNT	SCOTT AND STRINGFELLOW INC.	548
246	SDPT	STOCK DEPOT, INC.	500
247	SIDC	SIDOTI & COMPANY, LLC	500
248	WMDT		500
249	WMQT		500
250	BAYC	BAY CREST PARTNERS, LLC	480
251	DOTC	DOUGHERTY & COMPANY LLC	460
252	MSTR	MASTERTRADER.COM	450
253	CRTC	CRT CAPITAL GROUP LLC	400
254	SPOT	SPOT TRADING L.L.C.	400
255	STSS	SUCCESS TRADE	400
256	YAMN	YAMNER AND CO. INC.	400
257	WEMM	WELLS FARGO SECURITIES, LLC.	331
258	ETAX		300
259	MBTS	MB TRADING	300
260	UNEX	UNX, INC. A DELAWARE CORPORATI	247
261	MVPF	GRACE FINANCIAL GROUP LLC	240
262	LMGT		200
263	OMER	OCTEG, LLC	200
264	PFNZ		200
265	PFRC	APEX CLEARING CORPORATION	200
266	PFRJ		200

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Exhibit 7

Thoratec Corp. Market Maker Activity from 5/2011 to 8/2014

Number	Code	Market Maker	Volume
267	SOCO	HIBERNIA SOUTHCOAST CAPITAL, I	197
268	MICA	SPARTAN SECURITIES GROUP LTD	150
269	WMYO		127
270	RGLD	REGAL DISCOUNT SECURITIES, INC	114
271	ETBB	ELECTRONIC TRANSACTION CLEARING, INC	109
272	JNKK	JNK SECURITIES CORP.	100
273	DETF		27
274	CBRA	COBRA TRADING, INC.	17
275	FLTU	FLOW TRADERS US LLC	1

Exhibit 8A

Thoratec Corp.

NYSE Short Interest as a Percentage of Total Shares Outstanding

Date	Short Interest	Shares Outstanding	NYSE Short Interest Ratio
5/13/2011	13,484,118,000	439,049,241,455	3.07%
5/31/2011	13,153,690,000	439,049,241,455	3.00%
6/15/2011	13,485,624,000	439,142,679,182	3.07%
6/30/2011	13,437,350,000	439,142,679,182	3.06%
7/15/2011	13,412,423,400	419,502,493,981	3.20%
7/29/2011	13,310,040,000	419,502,493,981	3.17%
8/15/2011	14,377,829,000	436,057,075,543	3.30%
8/31/2011	14,861,970,000	436,057,075,543	3.41%
9/15/2011	15,690,527,000	470,684,124,558	3.33%
9/30/2011	14,946,060,000	470,684,124,558	3.18%
10/14/2011	14,673,448,000	471,750,989,006	3.11%
10/31/2011	14,151,690,000	471,750,989,006	3.00%
11/15/2011	14,101,204,000	418,114,322,339	3.37%
11/30/2011	14,293,430,000	418,114,322,339	3.42%
12/15/2011	13,535,710,000	415,612,338,571	3.26%
12/30/2011	12,774,860,000	415,612,338,571	3.07%
1/13/2012	13,394,258,000	414,681,290,765	3.23%
1/31/2012	12,534,300,000	414,681,290,765	3.02%
2/15/2012	12,571,964,600	414,477,714,990	3.03%
2/29/2012	12,578,150,000	414,477,714,990	3.03%
3/15/2012	12,833,568,700	418,040,161,721	3.07%
3/30/2012	12,632,330,000	418,040,161,721	3.02%
4/13/2012	12,934,408,800	421,657,330,251	3.07%
4/30/2012	13,105,500,000	421,657,330,251	3.11%
5/15/2012	13,480,090,800	422,699,504,635	3.19%
5/31/2012	14,275,770,000	422,699,504,635	3.38%
6/15/2012	14,740,974,300	430,380,873,502	3.43%
6/29/2012	14,165,420,000	430,380,873,502	3.29%
7/13/2012	13,964,544,700	428,734,396,268	3.26%

Exhibit 8A

Thoratec Corp.

NYSE Short Interest as a Percentage of Total Shares Outstanding

Date	Short Interest	Shares Outstanding	NYSE Short Interest Ratio
7/31/2012	13,890,050,000	428,734,396,268	3.24%
8/15/2012	13,816,400,000	430,746,003,035	3.21%
8/31/2012	13,708,680,000	430,746,003,035	3.18%
9/14/2012	14,016,079,102	430,234,718,244	3.26%
9/28/2012	13,585,100,000	430,234,718,244	3.16%
10/15/2012	13,357,216,797	430,704,857,411	3.10%
10/31/2012	13,296,610,000	430,704,857,411	3.09%
11/15/2012	13,604,232,422	430,153,664,298	3.16%
11/30/2012	13,670,090,000	430,153,664,298	3.18%
12/14/2012	13,604,706,055	431,575,987,057	3.15%
12/31/2012	12,903,200,000	431,575,987,057	2.99%
1/15/2013	12,830,185,547	377,902,292,400	3.40%
1/31/2013	12,793,920,000	377,902,292,400	3.39%
2/15/2013	13,108,510,742	385,552,235,322	3.40%
2/28/2013	13,306,410,000	385,552,235,322	3.45%
3/15/2013	13,624,235,352	378,469,156,200	3.60%
3/28/2013	13,228,660,000	378,469,156,200	3.50%
4/15/2013	13,356,582,031	438,856,960,892	3.04%
4/30/2013	13,510,930,000	438,856,960,892	3.08%
5/15/2013	13,510,227,539	438,774,855,806	3.08%
5/31/2013	13,442,790,000	438,774,855,806	3.06%
6/14/2013	13,881,775,391	441,761,550,673	3.14%
6/28/2013	14,190,000,000	441,761,550,673	3.21%
7/15/2013	14,096,181,641	443,233,612,645	3.18%
7/31/2013	13,695,970,000	443,233,612,645	3.09%
8/15/2013	13,749,200,195	443,732,047,268	3.10%
8/30/2013	13,907,140,000	443,732,047,268	3.13%
9/13/2013	14,006,160,156	441,162,888,057	3.17%
9/30/2013	13,650,470,000	441,162,888,057	3.09%

Exhibit 8A

Thoratec Corp.

NYSE Short Interest as a Percentage of Total Shares Outstanding

Date	Short Interest	Shares Outstanding	NYSE Short Interest Ratio
10/15/2013	13,757,582,031	445,924,797,190	3.09%
10/31/2013	13,660,720,000	445,924,797,190	3.06%
11/15/2013	13,940,764,648	448,879,247,701	3.11%
11/29/2013	13,900,070,000	448,879,247,701	3.10%
12/13/2013	13,797,649,414	450,443,504,310	3.06%
12/31/2013	13,418,840,000	450,443,504,310	2.98%
1/15/2014	13,818,674,805	452,864,262,471	3.05%
1/31/2014	13,892,890,000	452,864,262,471	3.07%
2/14/2014	14,256,681,641	455,165,588,935	3.13%
2/28/2014	14,300,820,000	455,165,588,935	3.14%
3/14/2014	14,676,225,586	457,527,327,780	3.21%
3/31/2014	14,522,300,000	457,527,327,780	3.17%
4/15/2014	14,309,439,453	459,613,280,677	3.11%
4/30/2014	14,176,500,000	459,613,280,677	3.08%
5/15/2014	14,122,998,047	461,728,900,084	3.06%
5/30/2014	14,077,440,000	461,728,900,084	3.05%
6/13/2014	14,531,009,766	463,563,723,659	3.13%
6/30/2014	14,630,860,000	463,563,723,659	3.16%
7/15/2014	14,734,380,859	465,963,228,591	3.16%
7/31/2014	14,807,790,000	465,963,228,591	3.18%
8/15/2014	14,821,669,922	463,065,321,094	3.20%
Class Period Average:	13,780,950,698	435,310,955,572	3.17%

Exhibit 8B

Thoratec Corp.

Short Interest
Source: Bloomberg

		Change In Chant			Short Interest	as % of:
Date	Short Interest	Change In Short Interest	Shares Outstanding	Float ¹	Shares Outstanding	Float
5/13/2011	7,081,158	-	57,209,000	56,890,620	12.38%	12.45%
5/31/2011	4,627,073	(2,454,085)	57,209,000	56,890,620	8.09%	8.13%
6/15/2011	3,581,452	(1,045,621)	57,209,000	56,890,620	6.26%	6.30%
6/30/2011	3,483,665	(97,787)	57,209,000	56,929,399	6.09%	6.12%
7/15/2011	4,440,611	956,946	57,209,000	56,929,399	7.76%	7.80%
7/29/2011	3,571,128	(869,483)	57,209,000	56,929,399	6.24%	6.27%
8/15/2011	2,953,190	(617,938)	59,742,000	59,462,399	4.94%	4.97%
8/31/2011	2,883,750	(69,440)	59,742,000	59,462,399	4.83%	4.85%
9/15/2011	3,169,300	285,550	59,742,000	59,462,399	5.30%	5.33%
9/30/2011	3,212,599	43,299	59,742,000	59,499,599	5.38%	5.40%
10/14/2011	2,964,574	(248,025)	59,742,000	59,499,599	4.96%	4.98%
10/31/2011	2,812,405	(152,169)	59,742,000	59,499,599	4.71%	4.73%
11/15/2011	1,749,192	(1,063,213)	59,928,000	59,685,599	2.92%	2.93%
11/30/2011	1,777,981	28,789	59,928,000	59,685,599	2.97%	2.98%
12/15/2011	1,574,108	(203,873)	59,928,000	59,685,599	2.63%	2.64%
12/30/2011	1,924,553	350,445	59,928,000	59,720,990	3.21%	3.22%
1/13/2012	2,077,314	152,761	59,928,000	59,720,990	3.47%	3.48%
1/31/2012	1,492,720	(584,594)	59,928,000	59,720,990	2.49%	2.50%
2/15/2012	2,245,800	753,080	59,928,000	59,720,990	3.75%	3.76%
2/29/2012	2,423,142	177,342	58,431,000	58,223,990	4.15%	4.16%
3/15/2012	2,627,119	203,977	58,431,000	58,223,990	4.50%	4.51%
3/30/2012	2,481,881	(145,238)	58,431,000	58,238,231	4.25%	4.26%
4/13/2012	2,092,738	(389,143)	58,431,000	58,238,231	3.58%	3.59%
4/30/2012	1,403,562	(689,176)	58,431,000	58,238,231	2.40%	2.41%
5/15/2012	2,422,799	1,019,237	58,670,000	58,477,231	4.13%	4.14%
5/31/2012	1,933,171	(489,628)	58,670,000	58,477,231	3.29%	3.31%
6/15/2012	1,784,355	(148,816)	58,670,000	58,477,231	3.04%	3.05%
6/29/2012	1,615,592	(168,763)	58,670,000	58,498,090	2.75%	2.76%
7/13/2012	1,769,113	153,521	58,670,000	58,498,090	3.02%	3.02%

Exhibit 8B

Thoratec Corp.

Short Interest
Source: Bloomberg

		Change In Chant			Short Interest	as % of:
Date	Short Interest	Change In Short Interest	Shares Outstanding	Float ¹	Shares Outstanding	Float
7/31/2012	2,538,653	769,540	58,670,000	58,498,090	4.33%	4.34%
8/15/2012	2,188,627	(350,026)	58,823,000	58,651,090	3.72%	3.73%
8/31/2012	2,013,080	(175,547)	58,823,000	58,651,090	3.42%	3.43%
9/14/2012	2,120,208	107,128	58,823,000	58,651,090	3.60%	3.61%
9/28/2012	1,996,812	(123,396)	58,823,000	58,662,349	3.39%	3.40%
10/15/2012	1,910,223	(86,589)	58,823,000	58,662,349	3.25%	3.26%
10/31/2012	1,078,917	(831,306)	58,823,000	58,662,349	1.83%	1.84%
11/15/2012	1,133,405	54,488	58,757,000	58,596,349	1.93%	1.93%
11/30/2012	3,841,027	2,707,622	58,757,000	58,596,349	6.54%	6.56%
12/14/2012	4,210,393	369,366	58,757,000	58,596,349	7.17%	7.19%
12/31/2012	3,558,781	(651,612)	58,757,000	58,585,883	6.06%	6.07%
1/15/2013	3,864,420	305,639	58,757,000	58,585,883	6.58%	6.60%
1/31/2013	3,496,489	(367,931)	58,757,000	58,585,883	5.95%	5.97%
2/15/2013	3,094,367	(402,122)	58,757,000	58,585,883	5.27%	5.28%
2/28/2013	3,022,587	(71,780)	57,605,000	57,433,883	5.25%	5.26%
3/15/2013	3,164,260	141,673	57,605,000	57,433,883	5.49%	5.51%
3/28/2013	3,126,212	(38,048)	57,605,000	57,433,883	5.43%	5.44%
4/15/2013	2,935,805	(190,407)	57,605,000	57,433,883	5.10%	5.11%
4/30/2013	2,456,588	(479,217)	57,605,000	57,433,883	4.26%	4.28%
5/15/2013	1,630,442	(826,146)	57,330,000	57,158,883	2.84%	2.85%
5/31/2013	1,271,489	(358,953)	57,330,000	57,158,883	2.22%	2.22%
6/14/2013	1,115,616	(155,873)	57,330,000	57,158,883	1.95%	1.95%
6/28/2013	1,144,076	28,460	57,330,000	57,120,744	2.00%	2.00%
7/15/2013	2,929,302	1,785,226	57,330,000	57,120,744	5.11%	5.13%
7/31/2013	3,171,268	241,966	57,330,000	57,120,744	5.53%	5.55%
8/15/2013	1,990,387	(1,180,881)	57,528,000	57,318,744	3.46%	3.47%
8/30/2013	1,828,322	(162,065)	57,528,000	57,318,744	3.18%	3.19%
9/13/2013	2,569,495	741,173	57,528,000	57,318,744	4.47%	4.48%
9/30/2013	2,226,864	(342,631)	57,528,000	57,318,744	3.87%	3.89%

Exhibit 8B

Thoratec Corp.

Short Interest
Source: Bloomberg

		Change In Chant			Short Interest	t as % of:
Date	Short Interest	Change In Short Interest	Shares Outstanding	Float ¹	Shares Outstanding	Float
10/15/2013	2,346,540	119,676	57,528,000	57,318,744	4.08%	4.09%
10/31/2013	2,258,372	(88,168)	56,971,000	56,761,744	3.96%	3.98%
11/15/2013	2,360,791	102,419	56,971,000	56,761,744	4.14%	4.16%
11/29/2013	2,244,517	(116,274)	56,971,000	56,761,744	3.94%	3.95%
12/13/2013	2,676,411	431,894	56,971,000	56,761,744	4.70%	4.72%
12/31/2013	2,282,278	(394,133)	56,971,000	56,782,301	4.01%	4.02%
1/15/2014	2,429,606	147,328	56,971,000	56,782,301	4.26%	4.28%
1/31/2014	2,743,820	314,214	56,971,000	56,782,301	4.82%	4.83%
2/14/2014	2,442,164	(301,656)	56,971,000	56,782,301	4.29%	4.30%
2/28/2014	2,892,613	450,449	56,778,000	56,589,301	5.09%	5.11%
3/14/2014	3,213,933	321,320	56,778,000	56,589,301	5.66%	5.68%
3/31/2014	2,546,925	(667,008)	56,778,000	56,493,961	4.49%	4.51%
4/15/2014	2,683,681	136,756	56,902,000	56,617,961	4.72%	4.74%
4/30/2014	2,481,548	(202,133)	56,902,000	56,617,961	4.36%	4.38%
5/15/2014	2,625,451	143,903	56,800,000	56,515,961	4.62%	4.65%
5/30/2014	2,737,785	112,334	56,800,000	56,515,961	4.82%	4.84%
6/13/2014	3,204,041	466,256	56,800,000	56,515,961	5.64%	5.67%
6/30/2014	3,314,006	109,965	56,800,000	56,472,455	5.83%	5.87%
7/15/2014	3,699,520	385,514	56,800,000	56,472,455	6.51%	6.55%
7/31/2014	4,250,454	550,934	56,800,000	56,472,455	7.48%	7.53%
8/15/2014	3,832,304	(418,150)	56,300,000	55,972,455	6.81%	6.85%
Class Period Average:	2,646,467	(41,652)	58,053,987	57,836,364	4.57%	4.59%
Class Period Minimum:	1,078,917	(2,454,085)	56,300,000	55,972,455	1.83%	1.84%
Class Period Maximum:	7,081,158	2,707,622	59,928,000	59,720,990	12.38%	12.45%

^[1] Float is equal to shares outstanding less insider holdings.

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Burbach (Gerhard F)	68,506	37,306	37,306	51,845	7,222	0	0
Cole (James Daniel)	37,612	34,612	34,612	32,020	33,099	33,099	29,099
Collis (Steven H)	16,592	13,592	13,592	11,000	16,579	16,579	13,579
Dimick (Neil F)	29,047	29,047	29,047	26,455	27,011	27,011	27,011
Finney (Elisha W)	13,717	13,717	13,717	11,125	14,192	14,192	14,192
Grossman (D Keith)	15,850	15,850	15,850	18,258	18,814	18,814	18,814
Harris (Taylor C)	0	0	0	0	0	0	23,890
Hawkins (William A III)	0	0	0	0	5,579	5,579	5,579
LaViolette (Paul A)	6,842	6,842	6,842	4,750	10,329	10,329	10,329
Lehman (David Aaron)	19,160	19,160	19,160	22,148	22,148	18,111	14,187
Marsh (Martha H)	0	0	0	0	0	0	0
Mulvena (Daniel M)	12,592	12,592	12,592	10,000	15,579	15,579	13,079
Oulman (Roxanne)	24,292	24,292	24,292	5,168	1,358	1,358	1,358
Padmanabhan (Vasant)	0	0	0	0	0	0	0
Schermerhorn (Todd C)	0	0	0	0	0	0	0
Smith (David V)	35,391	35,391	0	0	0	0	0
1st Global Advisors, Inc.	15,401	15,194	14,951	14,150	13,454	12,901	6,559
361 Capital LLC	0	0	0	0	0	0	0
A.R.T. Advisors, LLC	0	0	0	176,595	147,230	72,321	42,055
Abbot Downing Investment Advisors	9,400	0	0	0	0	0	0
Absolute Return Capital, LLC_NLE	0	0	0	0	0	0	0
Accipiter Capital Management, LLC	0	0	0	0	0	0	0
Adamant Biomedical Investments AG_NLE	135,800	0	2,000	2,000	2,000	2,000	2,000
Advance Capital Management, Inc.	0	0	0	0	0	6,100	9,000
Advantus Capital Management, Inc.	8,795	8,921	9,111	8,834	8,734	8,885	8,885
Advisor Partners, LLC	168	168	168	0	0	0	0
Advisors Asset Management, Inc.	2,100	2,000	5,245	8,891	9,019	8,347	7,151
AHL Partners LLP	0	0	0	0	0	0	0
Airain Ltd	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Burbach (Gerhard F)	24,020	24,020	24,020	24,020	91,308	91,308	91,308
Cole (James Daniel)	27,293	32,944	32,944	32,944	32,461	37,966	37,966
Collis (Steven H)	11,773	17,424	17,424	17,424	16,941	22,446	22,446
Dimick (Neil F)	25,205	27,083	27,083	27,083	26,600	27,322	27,322
Finney (Elisha W)	12,386	11,136	11,136	11,136	11,136	11,136	11,136
Grossman (D Keith)	12,031	13,787	13,787	13,787	17,199	13,135	138,380
Harris (Taylor C)	5,625	4,972	4,972	4,332	21,076	20,423	20,423
Hawkins (William A III)	1,863	7,514	7,514	7,514	5,121	10,626	10,626
LaViolette (Paul A)	9,023	14,674	14,674	14,674	11,691	11,173	11,173
Lehman (David Aaron)	19,459	19,539	19,539	13,650	28,854	28,854	28,854
Marsh (Martha H)	0	0	0	0	0	7,865	7,865
Mulvena (Daniel M)	11,273	16,924	16,924	5,651	5,168	5,168	0
Oulman (Roxanne)	2,755	2,755	2,755	0	0	0	0
Padmanabhan (Vasant)	0	0	0	0	0	18,134	18,134
Schermerhorn (Todd C)	0	8,073	8,073	8,073	8,073	13,578	13,578
Smith (David V)	0	0	0	0	0	0	0
1st Global Advisors, Inc.	6,246	0	0	0	0	0	0
361 Capital LLC	0	0	0	0	0	524	524
A.R.T. Advisors, LLC	85,568	22,817	37,062	75,030	33,320	0	0
Abbot Downing Investment Advisors	0	0	0	0	0	0	0
Absolute Return Capital, LLC_NLE	0	0	0	0	11,038	5,801	0
Accipiter Capital Management, LLC	0	0	0	0	0	0	200,000
Adamant Biomedical Investments AG_NLE	2,000	2,000	2,000	0	0	0	0
Advance Capital Management, Inc.	9,000	10,000	8,800	15,500	0	0	0
Advantus Capital Management, Inc.	8,658	8,558	8,558	8,232	8,132	7,932	7,932
Advisor Partners, LLC	0	0	0	0	0	0	0
Advisors Asset Management, Inc.	4,701	1,800	1,800	1,800	1,800	1,700	1,700
AHL Partners LLP	0	0	0	0	0	0	186,320
Airain Ltd	0	0	0	10,273	40,441	24,913	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
AJO, LP	0	236,400	285,300	235,800	275,800	158,800	286,700
Aktia Asset Management Oy Ab	8,000	8,000	8,000	8,000	8,000	8,000	8,000
Algert Global LLC	0	42,200	32,720	0	24,325	0	0
AllianceBernstein L.P.	56,931	60,431	60,261	57,511	57,361	55,362	55,315
Allianz Global Investors U.S. LLC	0	7,600	53,846	0	0	0	0
Allstate Investments LLC	6,860	6,860	6,860	0	0	0	4,560
Alps Advisors, Inc.	0	0	0	0	0	0	0
Alyeska Investment Group, L.P.	0	479,209	0	0	0	0	0
Amalgamated Bank Institutional Asset Management & Custody	0	0	0	0	0	0	0
American Beacon Advisors, Inc.	0	0	0	0	0	0	0
American Capital Management, Inc.	0	0	0	0	0	16,975	27,175
American Century Investment Management, Inc.	8,775	23,299	32,611	61,631	104,063	72,261	50,279
Ameritas Investment Partners, Inc.	0	0	0	0	0	14,400	9,500
AMG Funds LLC	4,681	4,681	4,681	4,681	0	0	0
Amici Capital, LLC_NLE	0	0	0	0	0	0	0
AMP Capital Investors Limited	0	0	0	0	0	0	0
Amundi Asset Management	12,011	0	0	0	0	0	0
Analytic Investors, LLC	0	0	0	0	0	0	0
Apex Capital, LLC_NLE	0	0	0	0	0	0	0
AQR Capital Management, LLC	345,980	422,279	537,450	516,978	618,660	568,701	544,101
Arbiter Partners Capital Management, LLC	1,002	0	0	0	0	0	0
Arden Asset Management LLC_NLE	0	0	0	0	0	0	0
Ariel Investments, LLC	0	0	0	0	0	0	0
Arizona State Retirement System	52,787	52,787	51,587	51,387	51,987	49,487	44,987
ArrowMark Colorado Holdings, LLC	0	0	0	0	0	0	12,363
Arrowstreet Capital, Limited Partnership	0	0	17,276	99,305	254,844	0	0
Arsenal Investment Advisors, LLC_NLE	0	0	0	0	116	116	116
Artisan Partners Limited Partnership	280,500	189,000	0	0	0	0	0
Ascend Capital, LLC	85,088	0	0	0	0	0	127,028

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
AJO, LP	26,000	0	0	0	0	0	0
Aktia Asset Management Oy Ab	8,000	8,000	8,000	8,000	8,000	8,000	0
Algert Global LLC	0	0	0	7,800	0	0	0
AllianceBernstein L.P.	54,731	128,068	134,733	134,484	135,442	129,633	129,573
Allianz Global Investors U.S. LLC	0	196,500	281,055	196,500	2,500	0	0
Allstate Investments LLC	0	0	0	0	0	0	0
Alps Advisors, Inc.	0	2,905	0	0	0	0	0
Alyeska Investment Group, L.P.	0	0	200,000	300,000	505,905	0	0
Amalgamated Bank Institutional Asset Management & Custody	0	0	0	6,185	6,132	5,784	0
American Beacon Advisors, Inc.	0	0	0	0	0	0	2,375
American Capital Management, Inc.	38,800	46,700	47,400	52,750	50,500	52,500	37,700
American Century Investment Management, Inc.	17,469	61,879	63,684	99,535	66,315	68,941	59,168
Ameritas Investment Partners, Inc.	12,500	12,500	14,062	14,062	34,008	34,154	45,922
AMG Funds LLC	0	0	0	0	0	0	0
Amici Capital, LLC_NLE	0	0	0	0	0	0	115,000
AMP Capital Investors Limited	0	0	8,075	8,075	8,075	0	0
Amundi Asset Management	0	989	0	289	0	0	23,097
Analytic Investors, LLC	0	0	10,472	9,913	9,913	9,913	9,913
Apex Capital, LLC_NLE	0	0	212,000	375,000	0	0	0
AQR Capital Management, LLC	589,000	720,600	473,644	431,900	453,600	532,600	302,600
Arbiter Partners Capital Management, LLC	0	0	0	0	0	0	0
Arden Asset Management LLC_NLE	0	0	0	0	0	5,977	5,347
Ariel Investments, LLC	0	0	1,768	1,768	1,768	867	547
Arizona State Retirement System	43,687	45,187	45,487	40,487	36,387	36,887	35,387
ArrowMark Colorado Holdings, LLC	6,182	0	0	0	0	0	0
Arrowstreet Capital, Limited Partnership	103,360	209,757	301,579	362,163	224,851	0	0
Arsenal Investment Advisors, LLC_NLE	116	116	116	116	116	0	0
Artisan Partners Limited Partnership	0	0	0	0	0	0	0
Ascend Capital, LLC	0	284,733	0	0	0	0	75,000

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Assenagon Asset Management S.A.	0	0	0	0	0	0	0
Assetmark, Inc.	50	0	0	0	0	0	0
AXA Rosenberg Investment Management LLC	0	0	0	0	0	0	0
Azzad Asset Management, Inc.	0	0	0	0	0	0	0
Baird Investment Management	117,212	122,113	29,360	31,301	32,185	31,515	19,869
Baldwin Investment Management, LLC	43,500	43,500	43,500	43,500	43,500	43,500	43,500
Balyasny Asset Management LP	25,000	0	0	0	0	0	0
BancorpSouth Investment Services Inc.(Texas)	6,815	6,718	0	0	0	0	0
Bank of America Merrill Lynch (US)	211,951	34,993	32,232	67,605	38,637	34,416	76,392
Bank of Oklahoma, N.A.	50,140	41,690	33,350	22,313	31,263	14,703	14,637
Barclays Capital	0	1,489	3,011	13,513	14,793	2,590	58,498
Barclays Capital Inc.	244,618	21,045	339,782	793,004	14,331	0	903
Barings LLC	1,700	1,700	4,700	12,700	7,300	0	12,000
Bartlett & Company	3,800	3,800	3,800	3,200	3,200	3,000	2,000
Bay Hill Capital Management, LLC	17,410	11,966	0	0	0	0	0
BayernInvest Kapitalanlagegesellschaft mbH	0	0	13,000	13,000	13,000	13,000	7,000
Bellevue Asset Management AG	159,000	130,000	50,000	79,800	28,100	62,900	30,000
Bessemer Trust Company, N.A. (US)	1,905	1,905	1,950	905	905	0	0
BlackRock (Singapore) Limited	0	0	0	0	27,213	24,986	12,240
BlackRock Advisors (UK) Limited	27,817	1,943	38,870	24,923	25,328	29,152	14,218
BlackRock Asset Management Australia Limited	4,420	433	26,508	16,138	15,561	9,922	6,056
BlackRock Asset Management Canada Limited	5,943	9,482	21,240	19,141	46,156	43,635	21,878
BlackRock Asset Management Ireland Limited	0	0	0	421	2,372	2,120	0
BlackRock Financial Management, Inc.	32,170	374,994	208,954	30,543	341,806	548,884	565,184
BlackRock Institutional Trust Company, N.A.	2,937,291	2,981,410	3,394,118	3,448,540	3,755,830	3,716,776	3,487,549
BlackRock International Ltd.	75,875	17,366	18,428	15,941	51,621	37,119	15,843
BlackRock Investment Management (Australia) Ltd.	0	0	0	156	556	556	0
BlackRock Investment Management (UK) Ltd.	0	46,600	0	26,186	129,009	180,108	110,897
BlackRock Investment Management, LLC	155,831	156,619	116,043	87,244	151,098	153,799	152,286

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Assenagon Asset Management S.A.	0	0	0	0	0	1,916	1,209
Assetmark, Inc.	0	0	0	0	0	0	0
AXA Rosenberg Investment Management LLC	0	0	0	13,394	10,607	18,382	18,429
Azzad Asset Management, Inc.	0	0	0	0	11,229	11,229	11,229
Baird Investment Management	18,375	0	0	0	0	0	0
Baldwin Investment Management, LLC	43,500	43,500	43,500	43,800	41,800	41,200	41,200
Balyasny Asset Management LP	157,651	1,010,869	277,673	97,900	323,152	409,306	1,429,052
BancorpSouth Investment Services Inc.(Texas)	0	0	0	0	0	0	0
Bank of America Merrill Lynch (US)	89,094	105,387	35,152	73,345	58,060	52,185	98,854
Bank of Oklahoma, N.A.	26,421	13,456	0	0	0	0	0
Barclays Capital	3,906	4,313	2,672	1,723	2,521	6,414	1,035
Barclays Capital Inc.	152,970	299,919	155,530	128,307	47,211	23,991	169,223
Barings LLC	7,000	0	0	0	0	0	0
Bartlett & Company	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Bay Hill Capital Management, LLC	0	0	0	0	0	0	0
BayernInvest Kapitalanlagegesellschaft mbH	0	0	0	0	0	0	0
Bellevue Asset Management AG	15,000	15,000	40,000	40,000	100,000	45,000	65,000
Bessemer Trust Company, N.A. (US)	0	0	0	0	0	0	0
BlackRock (Singapore) Limited	7,666	46,542	0	0	0	0	0
BlackRock Advisors (UK) Limited	28,333	6,661	892	1,457	2,958	2,376	892
BlackRock Asset Management Australia Limited	9,812	18,067	6,820	6,820	6,820	6,820	6,820
BlackRock Asset Management Canada Limited	15,848	53,436	1,451	1,406	1,406	1,335	1,335
BlackRock Asset Management Ireland Limited	1,257	5,011	2,220	1,998	7,581	6,857	5,672
BlackRock Financial Management, Inc.	659,032	875,528	810,660	733,239	752,242	1,246,054	1,667,433
BlackRock Institutional Trust Company, N.A.	4,827,421	6,788,217	5,207,953	6,165,881	5,162,617	4,677,497	4,455,823
BlackRock International Ltd.	25,030	85,502	21,998	24,252	24,628	60,328	34,438
BlackRock Investment Management (Australia) Ltd.	0	0	0	6,820	7,583	8,424	8,418
BlackRock Investment Management (UK) Ltd.	134,283	88,916	56,952	18,396	44,834	20,352	34,954
BlackRock Investment Management, LLC	161,547	280,510	305,100	298,591	296,048	342,235	413,008

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
BlackRock Japan Co., Ltd.	912	1,612	74,368	69,391	73,832	72,933	3,155
Blackstone Alternative Investment Advisors LLC	0	0	0	0	0	0	0
Blackthorn Investment Group, LLC	0	0	0	0	0	0	0
BLB&B Advisors, LLC	0	0	0	0	0	0	0
Bluefin Investment Management, LLC_NLE	162,000	385,200	293,800	269,100	283,800	302,500	0
BMO Asset Management U.S.	0	0	0	0	0	0	318,022
BMO Capital Markets (US)	0	189,155	194,683	217,508	218,147	193,692	0
BMO Harris Bank N.A.	0	0	0	0	0	11,083	34,497
BMO Nesbitt Burns Inc.	0	0	0	0	0	0	0
BMO Private Investment Counsel Inc.	0	0	0	0	0	0	0
BNP Paribas Investment Partners (France)	30,421	29,462	0	0	0	0	0
BNP Paribas Securities Corp. North America	0	0	0	0	0	0	0
BNY Mellon Asset Management	280,123	265,844	323,628	380,621	403,948	381,782	404,857
BNY Mellon Wealth Management	60,038	56,318	125,752	35,731	32,120	84,256	77,395
Bogle Investment Management, L.P.	0	0	0	0	0	0	57,885
Boston Advisors, LLC	0	0	0	0	0	0	12,750
Boston Partners	0	0	0	0	21,918	15,518	13,329
Boston Trust & Investment Management Company	0	0	0	0	0	746,148	859,243
Bourgeon Capital Management, LLC	0	0	13,179	0	0	0	0
BPI Gestão de Activos - S.G.F.I.M., S.A.	0	0	1,290	0	0	0	0
Breton Hill Capital Ltd.	0	0	0	0	0	0	9,170
Bridgeway Capital Management, Inc.	0	0	650	0	0	0	0
Bright Rock Capital Management LLC	14,125	0	12,000	0	0	0	0
British Columbia Investment Management Corp.	16,800	16,800	16,800	10,220	10,220	10,220	10,220
Broadfin Capital, L.L.C.	0	0	0	0	0	0	0
Broadview Advisors, LLC	133,100	0	0	0	0	0	0
Bryn Mawr Capital Management, IncNLE	0	0	0	0	0	0	9,892
C. M. Bidwell & Associates, Ltd.	0	4,700	4,700	3,660	3,880	3,880	3,225
C.S. McKee, L.P.	663,160	623,620	599,140	659,530	646,070	641,930	361,930

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
BlackRock Japan Co., Ltd.	52,419	116,363	33,616	27,081	35,877	23,540	3,392
Blackstone Alternative Investment Advisors LLC	0	0	0	0	6,700	6,200	6,200
Blackthorn Investment Group, LLC	0	7,519	0	0	0	0	0
BLB&B Advisors, LLC	0	0	0	0	11,415	11,415	11,335
Bluefin Investment Management, LLC_NLE	0	0	0	0	0	0	0
BMO Asset Management U.S.	205,787	267,086	341,154	405,239	457,048	450,148	304,666
BMO Capital Markets (US)	0	0	0	0	0	0	0
BMO Harris Bank N.A.	39,995	14,114	15,877	17,719	19,215	18,826	14,852
BMO Nesbitt Burns Inc.	0	0	0	0	0	1,430	0
BMO Private Investment Counsel Inc.	0	0	0	0	0	0	304,666
BNP Paribas Investment Partners (France)	0	0	0	0	0	0	0
BNP Paribas Securities Corp. North America	0	23,206	15,397	1,833	2,907	21	4,744
BNY Mellon Asset Management	372,753	310,111	281,267	285,002	282,069	266,336	261,326
BNY Mellon Wealth Management	89,397	80,170	31,484	28,082	26,229	25,070	22,228
Bogle Investment Management, L.P.	158,134	0	0	238,901	0	0	0
Boston Advisors, LLC	12,750	0	0	0	0	0	0
Boston Partners	19,647	0	0	0	168,300	168,300	433,080
Boston Trust & Investment Management Company	1,059,819	1,076,480	1,060,966	997,068	982,209	1,038,630	1,013,937
Bourgeon Capital Management, LLC	0	0	0	0	0	0	0
BPI Gestão de Activos - S.G.F.I.M., S.A.	0	0	0	0	0	0	0
Breton Hill Capital Ltd.	25,880	0	0	0	0	0	19,600
Bridgeway Capital Management, Inc.	0	700	0	0	0	0	18,600
Bright Rock Capital Management LLC	0	0	0	0	0	0	0
British Columbia Investment Management Corp.	0	0	0	0	0	0	0
Broadfin Capital, L.L.C.	0	0	0	0	121,867	0	500,000
Broadview Advisors, LLC	0	0	0	0	0	0	0
Bryn Mawr Capital Management, IncNLE	0	0	0	0	11,762	19,962	0
C. M. Bidwell & Associates, Ltd.	0	0	0	0	0	0	0
C.S. McKee, L.P.	370,080	356,978	335,118	195,948	178,748	165,298	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
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Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
CA Indosuez Wealth (Europe) S.A.	300	300	0	0	0	0	0
Cadence Capital Management, LLC	0	0	0	0	0	0	131,060
Cadian Capital Management LP	3,339,355	3,754,355	3,903,775	4,312,775	5,022,775	5,409,575	5,152,551
California Public Employees' Retirement System	158,848	169,968	152,418	162,718	147,718	141,318	139,318
California State Teachers Retirement System	99,285	99,985	101,185	101,985	104,906	106,006	102,906
Campbell & Company, Inc.	1,845	1,845	0	0	0	0	0
Canoe Financial LP	0	0	0	0	0	0	700
Capital Fund Management S.A.	19,403	0	48,103	102,203	213,803	152,040	39,398
Capital One Asset Management, LLC	26,883	24,645	25,811	28,095	25,385	0	0
Capital Research Global Investors	3,201,500	3,201,500	3,201,500	3,201,500	3,201,500	1,816,000	1,816,000
Capital World Investors	3,004,000	3,004,000	2,749,000	1,816,000	1,816,000	1,816,000	1,816,000
CastleRock Management_NLE	448,196	417,806	0	0	0	0	0
Catapult Capital Management LLC	24,214	0	0	0	0	0	0
Cavanal Hill Investment Management, Inc.	996	1,715	2,750	1,869	2,232	2,232	1,373
Caxton Associates LP	117,664	95,802	144,470	0	0	0	0
Central Trust & Investment Company	650	550	550	0	0	0	870
Century Capital Management, LLC	0	0	0	0	0	1,006,118	1,390,477
Certium Asset Management LLC_NLE	0	0	0	5,516	6,175	6,306	7,547
Champlain Investment Partners, LLC	0	0	0	7,500	4,500	0	0
Charles Schwab Investment Management, Inc.	141,966	143,662	59,004	96,583	96,391	98,296	64,058
Chartwell Investment Partners, LLC	0	0	0	0	0	314,355	308,180
Chatham Capital Group, Inc.	22,500	25,565	25,565	25,565	25,665	17,215	17,215
Checchi Capital Advisers, LLC	0	0	0	0	0	0	0
Chicago Equity Partners, LLC	0	65,345	44,875	4,150	0	0	0
Chinook Capital Management, LLC_NLE	145,925	110,493	98,376	94,125	86,748	80,274	71,535
CI Investments Inc.	0	0	0	0	0	0	19,100
CIBC Asset Management Inc.	1,393	1,393	1,393	1,393	1,393	1,393	1,393
CIBC Atlantic Trust Private Wealth Management	0	0	0	0	0	6,046	5,600
Cipher Capital LP	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
CA Indosuez Wealth (Europe) S.A.	0	0	0	0	0	0	0
Cadence Capital Management, LLC	206,214	134,306	0	102,997	138,870	119,870	0
Cadian Capital Management LP	2,650,840	0	0	0	0	0	0
California Public Employees' Retirement System	139,747	136,947	159,747	160,997	162,500	160,200	160,900
California State Teachers Retirement System	102,026	99,902	103,122	103,822	104,222	103,722	104,817
Campbell & Company, Inc.	78,556	10,956	0	0	0	0	0
Canoe Financial LP	700	0	0	0	0	0	0
Capital Fund Management S.A.	53,899	180,189	19,711	0	0	13,233	0
Capital One Asset Management, LLC	0	0	0	0	0	0	0
Capital Research Global Investors	723,000	0	0	0	0	0	0
Capital World Investors	723,000	0	0	0	0	0	435,000
CastleRock Management_NLE	0	0	0	0	0	0	0
Catapult Capital Management LLC	0	0	0	0	0	0	50,000
Cavanal Hill Investment Management, Inc.	779	758	0	0	0	0	0
Caxton Associates LP	0	0	0	0	0	0	0
Central Trust & Investment Company	16,790	1,900	0	0	0	0	0
Century Capital Management, LLC	260,571	0	0	0	0	0	0
Certium Asset Management LLC_NLE	7,429	7,555	12,580	12,580	12,401	12,038	12,038
Champlain Investment Partners, LLC	0	0	0	0	0	0	0
Charles Schwab Investment Management, Inc.	48,364	133,506	139,446	145,276	313,690	319,567	327,996
Chartwell Investment Partners, LLC	252,598	0	0	0	665,300	425,551	0
Chatham Capital Group, Inc.	17,215	17,365	16,565	16,565	16,565	16,565	16,865
Checchi Capital Advisers, LLC	0	0	0	0	278	0	0
Chicago Equity Partners, LLC	0	0	0	15,445	0	0	0
Chinook Capital Management, LLC_NLE	70,174	0	0	0	0	0	0
CI Investments Inc.	0	0	0	0	0	0	0
CIBC Asset Management Inc.	1,393	1,393	1,440	1,440	1,896	1,896	1,896
CIBC Atlantic Trust Private Wealth Management	5,600	5,600	5,575	375	375	375	375
Cipher Capital LP	0	0	0	0	0	9,589	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Citadel LLC	0	106,721	535,819	80,845	672,602	667,349	698,005
Citi Investment Research (US)	14,907	38,936	104,586	96,606	162,767	181,240	144,684
Citizens Financial Group, Inc.	0	0	320	0	0	0	0
ClearArc Capital, Inc.	36,914	33,863	33,294	28,433	29,314	22,772	12,902
Cloud Capital LLC	1,076	1,705	1,972	1,864	1,834	2,860	2,362
Cohen Capital Management, Inc.	74,015	74,015	103,865	109,015	140,165	140,165	140,315
Columbia Threadneedle Investments (US)	632,337	600,038	498,967	495,651	473,296	438,447	475,138
Columbus Circle Investors	0	0	119,591	0	0	0	202,723
Comerica, Inc.	7,989	9,124	7,293	6,166	11,910	12,064	3,698
Community Financial Services Group, LLC	0	0	0	0	1,200	1,200	1,200
Compass Efficient Model Portfolios, LLC	0	0	0	0	0	0	0
Concert Wealth Management Inc.	708	708	0	791	0	0	0
Congress Asset Management Company, LLP	0	0	0	0	0	123,411	150,558
Connor, Clark & Lunn Investment Management Ltd.	9,100	10,400	0	0	0	0	0
Continental Advisors LLC	27,900	27,900	27,900	0	0	0	0
Convergence Investment Partners, LLC	0	0	0	0	0	0	0
Cornerstone Capital Management Holdings LLC	0	0	0	4,340	0	0	0
Cortina Asset Management L.L.C.	0	553,574	672,627	655,071	716,385	711,137	572,515
CPP Investment Board	0	0	0	0	0	0	0
CR Intrinsic Investors, L.L.CNLE	0	0	0	0	0	0	0
Craig Drill Capital, L.L.C.	0	0	0	0	0	0	0
Creative Planning, Inc.	0	0	0	3,600	0	0	0
Credit Suisse Asset Management	0	0	0	0	0	0	0
Credit Suisse Asset Management, LLC (US)	3,561	3,561	3,561	3,561	3,561	3,561	0
Credit Suisse Private Banking (Switzerland)	4,885	6,624	6,624	5,903	5,903	3,869	3,869
Credit Suisse Securities (USA) LLC	126,151	78,623	62,021	166,610	134,086	75,117	110,386
Credo Capital Management, L.L.CNLE	0	0	0	0	0	0	0
Crossmark Global Investments, Inc	6,380	6,380	6,350	6,330	6,230	6,050	11,996
D. E. Shaw & Co., L.P.	0	0	34,508	231,704	95,892	26,790	101,392

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Citadel LLC	1,841,430	747,045	61,291	477,456	45,471	291,165	77,848
Citi Investment Research (US)	5,073	3,089	638	40,822	473	853	8,187
Citizens Financial Group, Inc.	0	0	0	0	0	0	0
ClearArc Capital, Inc.	12,887	12,607	12,206	11,894	5,307	306	306
Cloud Capital LLC	3,060	2,941	2,134	1,926	1,840	2,417	1,930
Cohen Capital Management, Inc.	143,115	150,165	148,465	148,465	148,465	149,665	149,665
Columbia Threadneedle Investments (US)	462,440	498,989	493,437	479,947	470,222	471,541	407,664
Columbus Circle Investors	11,043	0	0	0	0	0	0
Comerica, Inc.	3,335	3,285	3,008	1,285	1,250	865	368
Community Financial Services Group, LLC	1,200	0	0	0	0	0	0
Compass Efficient Model Portfolios, LLC	0	0	0	0	0	0	715
Concert Wealth Management Inc.	0	0	0	0	0	0	0
Congress Asset Management Company, LLP	140,006	0	0	0	0	0	0
Connor, Clark & Lunn Investment Management Ltd.	0	0	0	0	0	0	0
Continental Advisors LLC	0	47,500	47,500	47,500	47,500	86,500	116,004
Convergence Investment Partners, LLC	0	0	0	0	0	0	80,670
Cornerstone Capital Management Holdings LLC	0	0	0	0	0	0	0
Cortina Asset Management L.L.C.	556,557	549,936	578,764	562,888	603,605	324,998	0
CPP Investment Board	0	0	0	128,000	143,100	161,200	351,300
CR Intrinsic Investors, L.L.CNLE	0	0	350,000	65,000	100,000	100,000	0
Craig Drill Capital, L.L.C.	0	0	0	0	0	0	76,800
Creative Planning, Inc.	0	0	0	625	625	625	678
Credit Suisse Asset Management	0	0	0	0	0	2,260	7,460
Credit Suisse Asset Management, LLC (US)	0	0	0	0	0	0	0
Credit Suisse Private Banking (Switzerland)	3,869	5,500	5,500	5,500	5,500	5,500	5,500
Credit Suisse Securities (USA) LLC	130,824	162,499	57,766	268,030	111,062	102,794	54,446
Credo Capital Management, L.L.CNLE	436	330	0	0	0	0	0
Crossmark Global Investments, Inc	11,646	11,236	10,686	5,815	0	0	0
D. E. Shaw & Co., L.P.	520,078	307,711	391,359	133,753	128,391	138,990	113,463

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
D.A. Davidson & Co.	380	320	285	285	316	316	251
Dafna Capital Management, LLC	7,500	0	0	0	0	0	0
DB Platinum Advisors	0	0	0	200	148	86	87
Dean Capital Management, LLC	0	0	0	0	0	0	0
Dean Investment Associates, LLC	0	0	0	0	0	0	0
Decade Capital Management LLC	0	0	0	0	0	250,000	0
Decatur Capital Management, Inc.	0	0	0	0	10,643	10,643	9,193
Deere & Company	11,923	32,120	39,316	50,783	43,503	47,070	44,305
Deerfield Management Company, L.P.	0	0	0	0	0	0	0
Deka Investment GmbH	0	0	0	0	0	0	0
DekaBank Deutsche Girozentrale	0	0	0	0	0	0	0
Denver Investments	0	91,182	1,293,822	1,219,381	1,111,505	886,686	527,628
Deutsche Asset Management Americas	404,699	468,067	89,576	128,260	196,470	199,025	174,676
Deutsche Asset Management Investment GmbH	14,799	13,437	11,836	42,136	33,500	33,500	23,500
Deutsche Asset Management Investmentgesellschaft mbH_NLE	0	0	0	0	700	700	700
Deutsche Bank (Suisse) SA	20,042	20,042	20,042	20,042	20,042	526	526
Deutsche Bank Securities Inc.	6,093	64	4	13,623	90,000	2	10,556
Deutsche Investment Management Americas, Inc.	0	1,200	1,200	19,200	7,235	1,500	1,500
Diamondback Capital Management, L.L.CNLE	100,719	181,557	61,726	0	0	104,698	0
Dimensional Fund Advisors, L.P.	454,532	464,752	700,099	701,764	698,726	676,315	684,480
Dimensional Fund Advisors, Ltd.	600	800	1,129	1,129	1,129	1,429	1,908
DNB Asset Management AS	0	0	0	11,371	0	0	0
DP Fund Management Ltd	0	0	0	41,117	30,875	0	0
Dreman Value Management, L.L.C.	0	0	0	0	0	0	0
Duncker, Streett & Co., L.L.C.	0	0	0	0	0	475	475
Duquesne Capital Management, L.L.CNLE	225,000	0	0	0	0	0	0
Dynamic Capital Management LLC	0	0	0	0	0	0	11,488
Dynamic Technology Lab Pte Ltd.	0	0	0	0	0	0	0
E*TRADE Capital Management LLC	313	403	563	1,809	1,947	1,984	1,210

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
D.A. Davidson & Co.	0	0	0	0	0	0	0
Dafna Capital Management, LLC	0	0	0	0	0	0	0
DB Platinum Advisors	254	18,384	22,809	22,947	20,585	16,692	11,455
Dean Capital Management, LLC	0	0	0	0	0	0	3,895
Dean Investment Associates, LLC	0	0	0	0	0	0	64,320
Decade Capital Management LLC	0	0	0	0	0	0	295,900
Decatur Capital Management, Inc.	15,343	0	0	0	0	0	0
Deere & Company	62,066	20,748	20,748	20,748	26,885	32,708	37,299
Deerfield Management Company, L.P.	0	0	891,000	0	0	0	323,136
Deka Investment GmbH	0	0	0	0	0	49,500	49,500
DekaBank Deutsche Girozentrale	0	0	0	0	23,000	49,500	0
Denver Investments	404,838	0	0	0	0	0	0
Deutsche Asset Management Americas	265,232	314,829	255,072	474,172	407,121	192,752	672,611
Deutsche Asset Management Investment GmbH	0	0	0	0	0	0	161,290
Deutsche Asset Management Investmentgesellschaft mbH_NLE	700	0	0	0	0	0	0
Deutsche Bank (Suisse) SA	526	526	526	526	0	0	0
Deutsche Bank Securities Inc.	0	1,608	212,847	173	36,237	32,334	3,613
Deutsche Investment Management Americas, Inc.	119,074	120,381	120,296	120,296	147,751	180,044	180,044
Diamondback Capital Management, L.L.CNLE	0	0	0	0	0	0	0
Dimensional Fund Advisors, L.P.	702,342	730,012	780,134	819,579	860,077	898,458	964,820
Dimensional Fund Advisors, Ltd.	2,308	2,308	2,308	2,308	2,308	2,308	3,908
DNB Asset Management AS	0	0	0	0	0	0	0
DP Fund Management Ltd	0	0	0	0	0	0	0
Dreman Value Management, L.L.C.	0	0	0	0	83,900	71,000	152,200
Duncker, Streett & Co., L.L.C.	775	925	1,125	1,125	1,125	825	625
Duquesne Capital Management, L.L.CNLE	0	0	0	0	0	0	0
Dynamic Capital Management LLC	0	19,458	0	38,378	0	0	0
Dynamic Technology Lab Pte Ltd.	6,600	7,334	7,334	8,257	8,257	8,257	8,257
E*TRADE Capital Management LLC	1,291	1,195	1,102	1,024	1,078	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
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Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Eagle Asset Management, Inc.	2,520,897	2,413,944	1,841,017	1,595,597	1,563,172	1,897,267	2,219,526
Eaton Vance Management	39,085	39,085	37,885	32,185	30,685	30,685	29,135
Edge Asset Management, Inc.	0	0	0	0	0	0	0
Edmond de Rothschild Asset Management	0	0	0	0	0	0	0
Edward Jones Trust Company	0	0	0	0	0	0	0
Elk Creek Partners, LLC	0	0	0	0	0	0	0
Ellington Management Group, L.L.C.	42,500	6,400	0	0	16,700	45,800	0
Emerald Advisers, Inc.	0	16,762	0	0	0	0	16,931
Employees Retirement System of Texas	65,000	65,000	65,000	34,000	0	0	0
Envestnet Asset Management, Inc.	29,974	27,759	28,238	27,414	26,731	22,395	16,059
Essex Investment Management Company, LLC	300,548	280,635	238,247	0	75,437	0	0
Evli Fund Management Company Ltd.	0	0	0	0	0	0	0
Expo Capital Management LLC_NLE	0	775,000	0	575,000	575,000	575,000	0
Fan Asset Management, L.L.C.	0	0	0	17,200	17,200	17,200	22,900
Federated Equity Management Company of Pennsylvania	0	0	0	0	52,552	44,243	47,406
Federated Investment Management Company	3,900	0	0	0	0	0	0
Federated MDTA LLC	19	19	19	19	19	0	0
FFCM LLC	0	0	0	2,576	1,472	1,244	896
Fidelity Institutional Asset Management	215,690	0	0	158,410	0	547,186	1,546,800
Fidelity International	0	0	0	0	0	0	9,190
Fidelity Management & Research Company	0	0	50	0	156	156	215,456
Fiduciary Trust Company	13,550	13,550	13,550	13,550	13,550	13,550	13,550
Financial Architects Inc.	125	0	0	0	0	0	0
FineMark National Bank & Trust	0	0	100	0	0	0	0
First Allied Asset Management, Inc.	22	29	17	17	17	0	0
First Citizens Bank & Trust Company	0	0	0	0	0	0	5,412
First Light Asset Management, LLC	0	0	0	0	0	0	0
First Mercantile Trust Company	0	202	2,850	4,362	4,362	2,957	832
First Midwest Trust Company	0	9,670	6,930	7,480	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Eagle Asset Management, Inc.	1,968,538	1,651,656	3,821,483	3,972,122	3,600,767	2,922,575	1,348,800
Eaton Vance Management	29,135	15,585	14,985	14,985	14,885	11,735	11,735
Edge Asset Management, Inc.	0	0	81	81	84	84	84
Edmond de Rothschild Asset Management	56,200	56,200	0	0	0	0	0
Edward Jones Trust Company	0	276	0	0	0	0	0
Elk Creek Partners, LLC	0	0	0	0	52,185	90,596	106,731
Ellington Management Group, L.L.C.	0	34,400	0	0	0	0	0
Emerald Advisers, Inc.	16,354	0	209,360	258,213	246,053	248,273	0
Employees Retirement System of Texas	0	0	0	0	126,000	126,000	0
Envestnet Asset Management, Inc.	14,341	12,924	12,706	12,078	12,555	11,892	0
Essex Investment Management Company, LLC	0	0	0	0	0	0	0
Evli Fund Management Company Ltd.	0	0	0	0	0	0	106,000
Expo Capital Management LLC_NLE	0	0	0	0	0	0	0
Fan Asset Management, L.L.C.	0	0	0	0	0	0	0
Federated Equity Management Company of Pennsylvania	42,898	38,894	38,158	34,621	39,433	38,321	39,903
Federated Investment Management Company	0	0	0	0	0	0	0
Federated MDTA LLC	0	0	0	0	0	0	0
FFCM LLC	755	296	296	296	296	296	296
Fidelity Institutional Asset Management	582,800	0	0	0	0	0	0
Fidelity International	0	0	0	0	0	0	0
Fidelity Management & Research Company	377,100	377,100	377,100	138,729	72,245	72,245	103,100
Fiduciary Trust Company	13,550	13,550	13,550	13,550	13,550	13,550	13,550
Financial Architects Inc.	250	0	0	0	0	250	0
FineMark National Bank & Trust	0	0	0	0	0	0	0
First Allied Asset Management, Inc.	0	0	0	0	0	0	0
First Citizens Bank & Trust Company	13,328	12,867	0	0	0	0	0
First Light Asset Management, LLC	0	0	0	21,506	24,204	0	0
First Mercantile Trust Company	1,832	1,047	1,247	1,337	752	1,367	0
First Midwest Trust Company	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
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Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
First New York Capital Corp.	0	0	0	3,000	0	0	0
First Quadrant L.P.	0	0	0	84	0	0	0
First Trust Advisors L.P.	0	194,476	364,848	82,286	0	12,030	0
Florida State Board of Administration	112,094	107,996	108,237	108,237	109,378	107,020	107,020
Flow Traders U.S. LLC	0	0	0	0	0	0	0
FNB Wealth Management	810	570	410	410	410	410	260
FocusShares, LLC_NLE	488	552	556	578	644	0	0
Fort Washington Investment Advisors, Inc.	220,235	333,425	365,865	376,110	400,545	395,380	383,255
Franklin Advisers, Inc.	815,850	742,560	854,420	950,070	818,670	978,820	530,460
Franklin Equity Group	18,900	18,200	16,400	13,700	12,500	12,500	11,300
Franklin Templeton Investments Corporation	0	0	0	0	0	0	0
Fred Alger Management, Inc.	917,812	939,995	838,681	646,873	645,022	633,928	608,884
Freestone Capital Management, LLC	0	0	10,987	15,346	15,779	0	0
Frontier Capital Management Company, LLC	0	1,161,550	0	0	0	0	0
FTB Advisors, Inc.	82	0	0	0	0	0	0
Fuller & Thaler Asset Management Inc.	0	265,700	0	0	0	0	0
FundQuest, Incorporated_NLE	6,358	6,128	4,134	2,825	3,470	3,470	0
Gagnon Securities LLC	75,676	21,788	21,393	15,576	0	0	0
Gargoyle Asset Management, LLC	0	0	0	29,796	27,389	31,989	34,476
Gary Goldberg Planning Services Inc	0	0	0	0	0	0	0
GE Asset Management IncNLE	15,400	15,400	15,400	15,400	10,200	10,200	0
Gemmer Asset Management LLC	0	0	0	0	0	0	0
GenSpring Family Offices, LLC	0	0	0	80	0	0	0
Geode Capital Management, L.L.C.	174,609	204,108	210,815	212,033	223,042	227,503	274,657
Ghost Tree Capital, LLC	0	0	0	0	0	0	0
Glenmede Investment Management LP	0	0	0	0	0	300	300
Global Index Advisors, Inc.	92,930	111,811	115,729	102,554	0	0	0
Global X Management Company LLC	0	0	252	120	120	120	0
GlobalBridge, IncNLE	6,411	0	5,981	5,935	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
First New York Capital Corp.	0	0	0	0	0	0	0
First Quadrant L.P.	0	0	0	2,300	2,300	2,300	2,300
First Trust Advisors L.P.	182,017	114,292	0	21,119	0	34,536	37,934
Florida State Board of Administration	107,138	103,426	51,972	51,155	51,155	51,155	51,155
Flow Traders U.S. LLC	0	0	0	0	0	1	1
FNB Wealth Management	0	0	0	0	0	0	0
FocusShares, LLC_NLE	0	0	0	0	0	0	0
Fort Washington Investment Advisors, Inc.	212,790	175,716	112,256	102,345	0	0	0
Franklin Advisers, Inc.	147,900	471,887	272,072	294,306	321,049	331,335	0
Franklin Equity Group	11,300	13,100	13,100	10,700	10,500	10,500	0
Franklin Templeton Investments Corporation	0	17,860	17,860	0	0	0	0
Fred Alger Management, Inc.	652,709	536,132	750,279	656,767	637,136	545,910	0
Freestone Capital Management, LLC	0	0	0	0	0	0	0
Frontier Capital Management Company, LLC	0	0	0	0	0	0	0
FTB Advisors, Inc.	0	0	0	0	0	0	0
Fuller & Thaler Asset Management Inc.	0	0	0	0	0	0	0
FundQuest, Incorporated_NLE	0	0	0	0	0	0	0
Gagnon Securities LLC	0	0	0	0	0	0	0
Gargoyle Asset Management, LLC	34,476	0	0	0	0	0	0
Gary Goldberg Planning Services Inc	0	0	0	0	2,295	1,070	0
GE Asset Management IncNLE	0	0	0	0	89,111	113,481	3,535
Gemmer Asset Management LLC	0	0	0	0	168	168	168
GenSpring Family Offices, LLC	0	0	0	0	0	0	0
Geode Capital Management, L.L.C.	302,696	338,366	354,058	384,144	403,561	436,406	474,565
Ghost Tree Capital, LLC	0	0	0	0	0	0	140,000
Glenmede Investment Management LP	0	0	0	81,050	79,198	76,654	1,170
Global Index Advisors, Inc.	0	0	0	0	0	0	0
Global X Management Company LLC	0	0	0	0	0	0	0
GlobalBridge, IncNLE	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
GlobeFlex Capital, L.P.	0	0	17,300	35,300	35,800	35,800	35,800
GO ETF Solutions LLP	0	0	0	0	0	0	0
Goldman Sachs & Company, Inc.	118,858	65,304	6,070	19,880	206,324	193,866	15,613
Goldman Sachs Asset Management (US)	162,200	55,283	50,000	39,628	39,728	41,725	43,115
Gotham Asset Management, LLC	22,936	15,478	23,625	40,793	90,834	72,252	70,833
Granahan Investment Management, Inc.	210,244	210,244	210,244	210,244	210,244	0	0
Great Point Partners, LLC	0	0	50,000	0	0	0	0
Green Arrow Capital Management LLC	0	0	49,738	99,214	70,000	0	0
Group One Trading, L.P.	0	3,502	2,558	7,192	0	111	21
GSA Capital Partners LLP	0	12,965	0	25,582	0	6,429	10,568
GSB Podium Advisors, LLC_NLE	0	0	0	0	0	0	0
Guggenheim Investment Management, L.L.CNLE	0	0	152,929	154,995	0	0	0
Guggenheim Investments	221,360	206,915	244,367	252,971	206,391	218,841	145,104
GWL Investment Management Ltd.	0	0	0	0	0	0	0
Haber Trilix Advisors, LPNLE	0	0	0	0	0	0	700
HAGIN Investment Management	0	0	0	0	0	0	0
Hancock Horizon Investments	3,989	3,891	0	0	0	0	0
Hanseatic Management Services, Inc.	3,430	3,430	0	0	0	0	0
Hanwha Asset Management Co., Ltd.	39,400	38,000	38,000	35,900	2,500	0	0
HAP Trading, LLC	0	0	0	0	0	0	54,732
Hartford Investment Management Company	2,725	2,873	2,963	0	2,646	2,823	0
Hatteras Alternative Mutual Funds, LLC_NLE	0	3,650	4,500	4,700	5,400	0	0
Hatteras Funds, LP	0	0	0	0	0	0	0
HBK Investments, L.P.	0	0	0	6,109	21,278	9,000	7,900
Healthinvest Partners AB	0	0	0	0	0	0	0
Hershey Trust Company	1,338	1,338	1,338	1,338	1,338	1,338	0
HFM Wealth Management	500	500	500	0	500	0	0
HGK Asset Management, Inc.	15,200	9,195	0	0	0	0	0
Highbridge Capital Management, LLC	11,526	0	0	0	83,081	41,857	8,407

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
GlobeFlex Capital, L.P.	35,800	0	0	0	0	21,300	0
GO ETF Solutions LLP	0	1,950	1,955	1,955	1,955	1,955	1,955
Goldman Sachs & Company, Inc.	48,918	18,160	63,571	101,167	128,770	155,660	160,785
Goldman Sachs Asset Management (US)	38,208	50,688	36,879	36,818	36,391	47,285	42,113
Gotham Asset Management, LLC	109,834	92,651	0	8,481	0	402,924	970,893
Granahan Investment Management, Inc.	0	0	0	0	10,400	10,400	0
Great Point Partners, LLC	0	0	0	0	0	360,000	22,300
Green Arrow Capital Management LLC	60,000	0	130,000	0	0	0	0
Group One Trading, L.P.	1,521	621	245	6,331	2,731	4,185	4,884
GSA Capital Partners LLP	22,341	30,903	32,809	38,283	21,543	0	0
GSB Podium Advisors, LLC_NLE	5,395	0	0	0	0	0	0
Guggenheim Investment Management, L.L.CNLE	0	0	0	0	0	0	0
Guggenheim Investments	192,223	165,880	146,678	17,949	23,639	19,066	23,822
GWL Investment Management Ltd.	0	69,400	27,437	4,037	4,037	22,137	25,337
Haber Trilix Advisors, LPNLE	400	0	0	0	0	0	0
HAGIN Investment Management	21	0	0	0	0	0	0
Hancock Horizon Investments	0	0	0	0	0	0	0
Hanseatic Management Services, Inc.	0	0	0	0	0	0	0
Hanwha Asset Management Co., Ltd.	0	0	0	0	0	0	0
HAP Trading, LLC	0	0	0	27,006	0	0	0
Hartford Investment Management Company	0	0	0	0	0	0	0
Hatteras Alternative Mutual Funds, LLC_NLE	0	0	0	0	682	626	0
Hatteras Funds, LP	0	0	0	647	647	647	373
HBK Investments, L.P.	11,100	11,552	0	15,345	12,800	24,400	0
Healthinvest Partners AB	0	0	123,188	98,135	153,366	440,366	366,066
Hershey Trust Company	0	0	0	0	0	0	0
HFM Wealth Management	0	0	0	0	0	0	0
HGK Asset Management, Inc.	0	0	0	0	0	0	0
Highbridge Capital Management, LLC	191,074	273,356	396,645	438,328	263,596	20,640	65,752

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Highland Capital Management, L.P.	0	30,000	40,000	0	0	0	0
Highlander Capital Management, LLC	0	0	0	0	0	0	0
Highline Capital Management, L.P.	0	0	342,700	0	0	0	0
HighMark Capital Management Inc.	3,400	4,400	4,400	0	0	0	0
Highside Capital Management, L.PNLE	0	0	878,200	943,600	908,700	0	0
Hillsdale Investment Management Inc.	0	4,900	4,900	4,900	16,260	29,700	21,700
Hilton Capital Management, LLC	0	0	0	0	0	4,175	0
Horrell Capital Management, Inc.	5,845	5,845	5,845	5,845	5,845	4,835	4,835
Hotchkis and Wiley Capital Management, LLC	38,613	38,613	38,613	38,613	38,613	0	0
HSBC Bank Brasil S.A.	0	0	0	5,500	0	0	0
HSBC Bank USA, N.A.	4,686	5,184	4,073	2,539	4,467	4,357	0
HSBC Global Asset Management (Canada) Limited	2,255	2,475	745	745	745	745	745
HSBC Global Asset Management (International) Limited	0	0	0	0	0	0	0
HSBC Global Asset Management (UK) Limited	111,868	114,915	111,257	68,083	18,000	22,232	18,080
HSBC Global Asset Management Deutschland GmbH	0	6,400	0	5,500	0	0	0
HSBC Private Wealth Managers	60,000	60,000	60,000	60,000	60,000	60,000	0
Hutchin Hill Capital, LP	0	0	0	30,656	87,800	0	0
I.G. Investment Management, Ltd.	0	0	0	0	0	0	17,850
IBM Retirement Fund	29,430	29,466	29,466	29,430	28,973	28,973	28,842
ICON Advisers, Inc.	0	0	0	0	0	0	0
Iguana Healthcare Management, LLC	0	0	0	0	0	0	0
Independence Capital Asset Partners, LLC	0	0	0	2,952	0	0	0
Index Management Solutions, LLC_NLE	0	0	0	0	0	0	0
Intrepid Capital Management, Inc. (FL)	0	0	0	0	0	0	0
Intrinsic Value Investments Limited_NLE	0	0	26,167	27,121	27,121	27,121	27,121
Invesco Advisers, Inc.	243,446	304,436	347,539	213,374	204,059	1,180,516	1,201,208
Invesco Management Group, Inc.	0	0	0	0	10,192	828,166	843,247
Invesco PowerShares Capital Management LLC	14,147	13,244	33,409	26,935	27,579	11,843	30,463
INVESCO Taiwan Ltd.	2,000	2,000	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Highland Capital Management, L.P.	0	0	19,241	59,755	161,084	0	0
Highlander Capital Management, LLC	0	0	0	5,000	0	0	0
Highline Capital Management, L.P.	0	0	0	0	0	0	0
HighMark Capital Management Inc.	0	0	0	0	0	13,740	13,740
Highside Capital Management, L.PNLE	0	0	0	0	0	0	0
Hillsdale Investment Management Inc.	8,450	8,250	8,250	9,330	9,330	11,330	10,330
Hilton Capital Management, LLC	0	0	0	0	0	0	0
Horrell Capital Management, Inc.	4,835	4,335	4,335	2,835	2,835	2,835	2,335
Hotchkis and Wiley Capital Management, LLC	0	0	0	0	0	169,850	572
HSBC Bank Brasil S.A.	0	0	0	0	0	0	0
HSBC Bank USA, N.A.	0	0	9,402	9,166	9,210	8,596	0
HSBC Global Asset Management (Canada) Limited	745	745	745	0	0	0	0
HSBC Global Asset Management (International) Limited	0	0	0	0	0	5,000	0
HSBC Global Asset Management (UK) Limited	20,765	18,000	18,000	0	599	599	0
HSBC Global Asset Management Deutschland GmbH	0	0	0	0	0	5,000	0
HSBC Private Wealth Managers	0	0	0	0	0	0	0
Hutchin Hill Capital, LP	0	0	0	30,098	0	0	0
I.G. Investment Management, Ltd.	0	0	0	0	0	0	0
IBM Retirement Fund	28,879	0	0	0	0	0	0
ICON Advisers, Inc.	0	0	0	0	16,000	82,000	41,000
Iguana Healthcare Management, LLC	0	0	0	30,000	0	0	0
Independence Capital Asset Partners, LLC	0	0	0	0	0	0	0
Index Management Solutions, LLC_NLE	0	1,666	1,496	1,815	2,047	2,464	11,985
Intrepid Capital Management, Inc. (FL)	0	0	0	0	0	0	34,000
Intrinsic Value Investments Limited_NLE	27,121	27,121	27,121	27,121	0	0	0
Invesco Advisers, Inc.	1,238,210	1,248,170	1,244,216	1,535,397	1,153,047	1,105,713	1,221,304
Invesco Management Group, Inc.	864,845	838,303	828,179	849,244	849,244	849,244	795,835
Invesco PowerShares Capital Management LLC	12,356	12,734	14,372	46,575	25,171	25,470	26,372
INVESCO Taiwan Ltd.	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Invictus RG Pte. Ltd.	0	0	0	9,120	4,144	0	0
Irish Life Investment Managers Ltd.	1,453	1,453	1,453	1,453	2,437	2,437	2,437
J.P. Morgan Securities LLC	1,483	1,609	5,562	438,170	107,954	2,992	119,098
Jackson Square Partners, LLC	15,900	15,900	15,900	15,900	15,900	0	0
Jacobs Levy Equity Management, Inc.	0	29,300	132,700	163,300	342,520	244,220	140,400
Jane Street Capital, L.L.C.	0	0	0	7,743	0	7,507	9,347
Janney Montgomery Scott LLC	0	0	0	0	0	0	0
Janus Henderson Investors	0	31,100	425,000	463,000	43,500	0	0
Jefferies LLC	336,655	34,934	0	9,750	8,251	0	0
Jennison Associates LLC	0	0	0	0	2,300	2,300	0
Johnson Financial Group Inc.	0	0	0	0	0	3,250	3,250
Johnson Investment Counsel, Inc.	0	0	0	0	0	0	0
JP Morgan Asset Management	2,450,752	2,192,933	2,308,435	2,021,041	1,230,351	1,074,372	1,051,510
JPMorgan Asset Management U.K. Limited	0	0	0	17,320	0	0	0
JPMorgan Private Bank (United States)	7,246	6,510	4,035	176,647	17,182	3,623	3,646
Kayne Anderson Rudnick Investment Management, LLC	15,600	15,600	0	0	0	0	0
KB Asset Management Co., Ltd.	0	0	0	0	0	140	210
KBC Asset Management N.V.	24,257	23,508	5,998	4,598	4,598	22,191	21,830
KBC Fund Management Limited	640	0	0	0	0	0	0
KBC Group NV	13,903	13,503	4,598	4,660	4,660	47,101	46,107
KBL Richelieu Gestion	0	0	0	0	0	0	0
KCG Americas LLC	0	0	0	7,330	0	0	0
Kentucky Teachers' Retirement System	19,822	19,822	19,822	19,822	19,822	19,822	19,822
King Investment Advisors, IncNLE	186,260	314,350	295,560	289,745	287,010	279,155	190,315
Kistler-Tiffany Advisors	0	0	0	0	0	0	0
Klingenstein Fields Wealth Advisors	0	0	6,040	6,040	6,040	6,040	6,040
Kopp Investment Advisors, LLC	69,392	63,217	50,739	38,240	40,648	38,843	37,238
Ladenburg Thalmann Asset Management Inc. (LTAM)	0	0	466	390	384	384	384
Lazard Asset Management, L.L.C.	0	0	0	0	0	0	18,500

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
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Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
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Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Invictus RG Pte. Ltd.	4,117	0	0	0	0	0	9,400
Irish Life Investment Managers Ltd.	2,437	2,437	2,437	2,437	2,437	2,437	2,437
J.P. Morgan Securities LLC	207,422	138,464	23,231	10,739	17,703	83	83
Jackson Square Partners, LLC	0	0	0	0	0	0	0
Jacobs Levy Equity Management, Inc.	113,400	0	77,900	225,929	88,740	0	0
Jane Street Capital, L.L.C.	0	0	16,324	8,627	0	0	0
Janney Montgomery Scott LLC	0	0	5,400	0	6,700	0	0
Janus Henderson Investors	84,200	599,300	472,900	0	0	1,190,132	0
Jefferies LLC	15,807	5,263	590	15,313	0	0	0
Jennison Associates LLC	1,700	1,700	0	0	0	0	14,687
Johnson Financial Group Inc.	3,328	3,925	3,075	3,075	950	3,025	3,025
Johnson Investment Counsel, Inc.	6,700	0	0	0	0	0	0
JP Morgan Asset Management	1,261,790	47,926	42,333	41,033	318,358	308,558	688,035
JPMorgan Asset Management U.K. Limited	0	0	0	0	0	0	0
JPMorgan Private Bank (United States)	36,329	100	100	0	16,000	26,000	57,910
Kayne Anderson Rudnick Investment Management, LLC	0	0	0	0	0	0	0
KB Asset Management Co., Ltd.	180	490	490	1,600	1,554	1,554	0
KBC Asset Management N.V.	21,754	20,771	0	0	0	0	0
KBC Fund Management Limited	0	0	0	0	0	0	0
KBC Group NV	35,253	33,165	12,944	12,944	0	0	0
KBL Richelieu Gestion	0	0	0	0	0	12,000	9,000
KCG Americas LLC	0	0	0	0	7,236	0	0
Kentucky Teachers' Retirement System	18,722	12,822	11,622	11,622	11,622	11,622	11,622
King Investment Advisors, IncNLE	188,945	200,620	191,625	143,690	145,075	144,470	0
Kistler-Tiffany Advisors	69	0	0	0	0	0	0
Klingenstein Fields Wealth Advisors	6,040	0	0	0	0	0	0
Kopp Investment Advisors, LLC	40,445	42,495	38,519	55,583	44,454	0	0
Ladenburg Thalmann Asset Management Inc. (LTAM)	0	32	39	39	39	39	39
Lazard Asset Management, L.L.C.	18,500	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Lebenthal Lisanti Capital Growth, LLC	0	80,500	0	0	0	0	0
Ledyard National Bank	0	0	0	0	0	0	0
Legal & General Investment Management Ltd.	0	0	0	0	0	0	0
Legato Capital Management LLC	0	0	0	0	0	6,764	6,764
LGT Capital Partners Ltd.	0	0	0	0	0	0	0
Liberty Mutual Insurance Group	19,033	24,604	20,222	29,307	33,253	24,805	25,022
Loews Corporation	50,000	32,000	32,000	22,000	22,000	22,000	22,000
Lombard Odier Asset Management (USA) Corp.	0	2,600	0	0	0	0	0
Lord, Abbett & Co. LLC	706,557	420,257	631,557	537,957	0	0	0
Los Angeles Capital Management And Equity Research, Inc.	96,325	98,235	99,995	99,718	99,418	94,108	0
Lotsoff Capital Management_NLE	16,449	0	0	0	0	0	0
Louisiana State Employees' Retirement System	0	0	0	0	0	0	0
LPL Financial	8,682	8,682	8,682	8,682	8,682	8,682	0
LPL Financial LLC	10,519	8,285	6,735	0	0	0	0
LSV Asset Management	48,400	48,400	48,400	48,400	48,400	0	0
Luther King Capital Management Corp.	0	0	0	0	0	7,800	7,900
Lyxor Asset Management	0	0	0	0	32	33	33
M&I Investment Management CorpNLE	187,622	187,622	187,622	187,622	187,622	0	0
Mackenzie Financial Corporation	0	0	0	0	0	0	0
Macquarie Investment Management Ltd.	0	1,500	0	16,750	0	0	0
Magnetar Capital Partners LP	0	0	0	26,137	0	0	0
Man Investments, Ltd.	0	0	0	0	0	0	0
Managed Account Advisors LLC	162,034	159,212	180,737	127,683	183,021	200,639	221,435
Manchester Capital Management LLC	0	0	0	0	0	0	0
Manning & Napier Advisors, LLC	311,780	347,980	352,620	360,700	358,640	364,140	370,940
Manulife Asset Management (North America) Limited_NLE	0	0	0	0	0	0	0
Manulife Asset Management (US) LLC	233,249	199,945	220,228	169,864	236,646	187,845	189,966
Manulife Asset Management Accord (2015) Inc.	9,100	0	0	0	0	0	0
Manulife Asset Management Limited	84,567	95,062	96,178	91,136	38,029	37,640	34,159

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Lebenthal Lisanti Capital Growth, LLC	0	0	0	0	0	0	0
Ledyard National Bank	0	0	0	81	81	81	0
Legal & General Investment Management Ltd.	0	0	0	0	0	0	8,329
Legato Capital Management LLC	0	0	0	0	0	0	0
LGT Capital Partners Ltd.	0	0	0	0	0	0	100,000
Liberty Mutual Insurance Group	23,331	23,693	17,931	12,386	17,938	18,142	18,305
Loews Corporation	22,000	22,000	22,000	20,000	20,000	20,000	0
Lombard Odier Asset Management (USA) Corp.	0	0	0	0	0	0	0
Lord, Abbett & Co. LLC	0	0	0	104,503	104,503	0	0
Los Angeles Capital Management And Equity Research, Inc.	0	0	0	0	21,050	32,925	38,895
Lotsoff Capital Management_NLE	0	0	0	0	0	0	0
Louisiana State Employees' Retirement System	0	0	0	15,600	15,300	15,300	15,300
LPL Financial	0	0	0	0	0	0	0
LPL Financial LLC	0	0	5,818	7,639	8,751	8,298	8,298
LSV Asset Management	0	0	0	0	0	0	0
Luther King Capital Management Corp.	7,900	7,900	7,800	0	0	0	0
Lyxor Asset Management	73	60	415	418	153	152	296
M&I Investment Management CorpNLE	0	0	0	0	0	0	0
Mackenzie Financial Corporation	0	672,600	339,600	0	0	280,800	326,600
Macquarie Investment Management Ltd.	0	0	0	0	0	0	0
Magnetar Capital Partners LP	32,752	25,266	0	0	0	0	0
Man Investments, Ltd.	0	44,382	19,873	22,204	50,306	48,370	48,370
Managed Account Advisors LLC	229,044	213,655	318,997	348,495	310,034	320,060	232,755
Manchester Capital Management LLC	9,022	7,976	13,202	13,202	14,391	14,391	9,409
Manning & Napier Advisors, LLC	376,410	480,320	748,680	763,890	551,430	661,190	1,575,340
Manulife Asset Management (North America) Limited_NLE	0	49,834	0	0	0	0	0
Manulife Asset Management (US) LLC	190,318	208,262	224,007	79,038	78,119	61,825	63,996
Manulife Asset Management Accord (2015) Inc.	0	0	0	0	0	0	0
Manulife Asset Management Limited	34,740	49,834	49,500	46,484	46,484	45,211	45,480

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
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Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Marshall Wace LLP	0	12,252	0	24,838	0	0	0
Martingale Asset Management, L.P.	0	0	0	0	0	0	0
Mason Street Advisors, LLC	21,700	22,700	22,900	22,900	23,500	23,600	23,200
Maverick Capital, Ltd.	1,661,138	0	0	0	0	0	0
MB Financial Bank, N.A.	0	0	0	168	168	0	0
McAdams Wright Ragen, IncNLE	0	0	0	0	0	0	0
McKinley Capital Management, LLC	0	64,102	64,131	0	0	0	0
Mellon Capital Management Corporation	139,574	142,274	184,868	395,250	461,318	448,375	398,106
Menta Capital LLC	0	0	0	0	15,260	11,960	9,660
Meritage Portfolio Management, Inc.	0	0	0	0	0	0	58,365
Mesirow Advanced Strategies Inc	2,343	0	0	0	0	0	0
Metropolitan Life Insurance Co. (US)	45,291	47,090	48,003	47,669	48,200	48,649	48,696
MFS Investment Management	874,780	541,820	436,688	311,848	255,178	0	0
Michigan Department of Treasury	31,600	31,100	31,700	30,900	31,000	28,500	28,500
Miles Capital, Inc.	0	0	0	0	0	0	0
Millennium Management LLC	61,000	46,293	239,076	51,682	17,081	58,588	139,843
MindShare Capital Management, LLC_NLE	0	32,655	10,940	0	0	0	0
MIV Asset Management AG	390,000	390,000	350,000	350,000	100,000	100,000	0
Monarch Partners Asset Management LLC	0	0	0	0	0	0	37,864
Morgan Stanley & Co. International Plc	0	0	0	0	0	0	0
Morgan Stanley & Co. LLC	53,373	38,522	52,271	292,397	384,482	242,745	35,197
Morgan Stanley Investment Management Inc. (US)	12,596	14,896	417	5,490	44,574	7,049	297
Morgan Stanley NLE, LLC	0	0	0	0	0	0	13,596
Morgan Stanley Wealth Management	30,037	14,328	50,586	4,028	3,826	4,079	4,840
Municipal Employees' Retirement System of Michigan	0	0	0	0	0	0	0
Mutual of America Capital Management LLC	124,063	123,072	107,367	70,802	31,129	31,104	33,282
National Asset Management, Inc.	0	0	0	0	0	0	0
Needham Investment Management L.L.C.	39,300	0	0	0	0	0	0
Nelson Capital Management_NLE	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
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Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Marshall Wace LLP	113,770	364,926	0	0	0	0	0
Martingale Asset Management, L.P.	0	0	0	6,203	7,210	7,360	0
Mason Street Advisors, LLC	34,400	34,000	22,870	22,564	22,606	22,093	22,095
Maverick Capital, Ltd.	0	0	0	0	0	0	0
MB Financial Bank, N.A.	0	0	0	0	0	0	0
McAdams Wright Ragen, IncNLE	0	0	0	0	0	0	236,945
McKinley Capital Management, LLC	0	0	0	0	0	0	0
Mellon Capital Management Corporation	386,279	286,514	237,588	238,758	248,140	267,020	303,826
Menta Capital LLC	25,660	0	0	5,500	0	15,200	0
Meritage Portfolio Management, Inc.	62,150	0	0	0	0	0	0
Mesirow Advanced Strategies Inc	0	0	0	0	0	0	0
Metropolitan Life Insurance Co. (US)	48,454	90,319	91,066	90,816	91,564	91,449	91,294
MFS Investment Management	0	0	0	0	0	0	1,028,451
Michigan Department of Treasury	27,900	26,400	26,800	26,700	26,700	26,800	26,700
Miles Capital, Inc.	0	0	0	0	18,187	9,706	0
Millennium Management LLC	285,870	521,827	725,923	319,928	544,281	577,951	1,175,557
MindShare Capital Management, LLC_NLE	0	0	0	0	0	0	0
MIV Asset Management AG	0	0	0	0	0	170,000	170,000
Monarch Partners Asset Management LLC	42,612	0	0	0	0	0	0
Morgan Stanley & Co. International Plc	0	0	0	0	0	1,081	0
Morgan Stanley & Co. LLC	379,547	325,986	105,694	345,337	77,603	76,673	62,369
Morgan Stanley Investment Management Inc. (US)	297	0	2,600	2,602	2,600	2,600	2,600
Morgan Stanley NLE, LLC	13,596	13,596	13,596	13,596	13,596	13,596	13,596
Morgan Stanley Wealth Management	22,617	4,110	10,081	36,872	9,614	11,624	1,206
Municipal Employees' Retirement System of Michigan	0	0	9,400	15,800	15,800	15,800	16,100
Mutual of America Capital Management LLC	33,521	34,340	69,919	70,538	68,762	35,180	35,053
National Asset Management, Inc.	0	0	0	0	0	7	0
Needham Investment Management L.L.C.	0	0	0	0	0	0	0
Nelson Capital Management_NLE	0	0	1,225	1,225	1,225	1,225	1,225

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
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Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Neuberger Berman, LLC	0	0	0	0	0	142,700	142,700
New England Securities Corp	0	0	0	0	0	0	0
New Jersey Division of Investment	60,000	60,000	60,000	60,000	60,000	0	0
New York State Common Retirement Fund	216,474	241,774	243,774	205,974	181,574	181,874	186,274
New York State Teachers' Retirement System	98,200	98,200	98,200	98,200	98,200	98,200	98,200
Newfleet Asset Management, LLC	38,485	38,085	0	0	0	0	0
NewSouth Capital Management, Inc.	0	0	0	0	0	0	0
Nicholas Company, Inc.	0	0	0	55,280	55,280	55,280	55,280
Nicholas Investment Partners, L.P.	0	0	0	0	0	0	80,260
Nine Chapters Capital Management LLC	0	0	0	0	0	0	0
Nomura Securities Co., Ltd.	27,989	12,723	0	0	0	0	0
Norges Bank Investment Management (NBIM)	406,121	406,121	451,750	451,750	224,500	224,500	224,500
Northern Trust Global Investments	50,396	113,576	72,363	48,041	41,459	36,415	36,997
Northern Trust Global Investments Limited	0	0	0	0	0	0	1
Northern Trust Investments, Inc.	344,378	356,583	367,200	378,415	398,149	409,078	443,063
Northwestern Mutual Capital, LLC	0	95	0	0	0	0	0
Numeric Investors LLC	0	0	0	0	6,200	0	0
Nuveen Asset Management, LLC	523,178	446,620	360,825	189,615	208,412	203,861	204,316
Nuveen LLC	620,176	614,479	603,548	392,364	278,474	270,718	522,938
Oak Associates, Ltd.	12,090	12,090	12,090	12,090	12,090	0	0
OakBrook Investments, LLC	6,399	7,090	6,790	6,540	9,190	9,557	10,557
Ocean State Asset Management, LLC_NLE	12,095	12,095	12,095	12,095	12,095	12,095	0
Ohio Public Employees Retirement System	43,400	129,502	19,559	12,850	13,100	13,100	21,651
Old Mutual Customised Solutions (Pty) Ltd	0	0	0	0	700	700	700
OMERS Administration Corporation	0	0	0	7,500	9,400	9,400	9,400
OneAmerica Asset Management, LLC	0	0	0	0	0	0	0
Oppenheim Asset Management Services S.à r.l.	0	0	0	0	0	0	0
Oppenheimer Asset Management Inc.	0	0	0	0	0	0	0
OppenheimerFunds, Inc.	1,630	0	0	0	0	0	320,000

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
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Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Neuberger Berman, LLC	142,700	142,700	142,700	142,700	1,167	0	0
New England Securities Corp	130	77	77	0	0	0	0
New Jersey Division of Investment	0	0	0	0	0	0	0
New York State Common Retirement Fund	161,874	161,874	161,874	161,874	161,874	158,074	141,174
New York State Teachers' Retirement System	98,200	98,200	98,200	98,100	98,000	98,000	98,000
Newfleet Asset Management, LLC	0	0	0	0	0	0	0
NewSouth Capital Management, Inc.	6,132	0	0	0	0	0	0
Nicholas Company, Inc.	55,280	75,465	75,340	75,340	75,765	75,670	75,670
Nicholas Investment Partners, L.P.	0	0	0	0	0	0	0
Nine Chapters Capital Management LLC	0	16,500	0	39,400	18,300	0	0
Nomura Securities Co., Ltd.	0	25,490	6,190	0	7,231	0	0
Norges Bank Investment Management (NBIM)	194,151	344,731	750,584	750,584	750,584	574,684	716,912
Northern Trust Global Investments	36,843	35,082	51,673	52,224	52,125	52,653	51,393
Northern Trust Global Investments Limited	1	141,619	141,619	141,618	84,090	0	0
Northern Trust Investments, Inc.	454,021	489,938	822,492	835,555	860,771	846,530	856,360
Northwestern Mutual Capital, LLC	0	0	0	0	0	0	0
Numeric Investors LLC	0	15,600	15,300	15,100	0	0	14,500
Nuveen Asset Management, LLC	205,188	256,823	242,926	214,559	151,878	198,135	159,469
Nuveen LLC	458,181	655,677	835,609	726,775	732,076	720,359	723,329
Oak Associates, Ltd.	0	0	0	0	0	0	0
OakBrook Investments, LLC	0	0	0	0	0	0	0
Ocean State Asset Management, LLC_NLE	0	0	0	0	0	0	0
Ohio Public Employees Retirement System	28,213	6,992	0	0	0	910	1,540
Old Mutual Customised Solutions (Pty) Ltd	700	700	0	0	0	0	0
OMERS Administration Corporation	0	0	0	0	0	0	0
OneAmerica Asset Management, LLC	0	0	0	59,400	59,800	59,800	59,800
Oppenheim Asset Management Services S.à r.l.	0	0	0	0	0	5,466	4,846
Oppenheimer Asset Management Inc.	14,405	9,298	27,123	25,259	9,136	22,962	24,039
OppenheimerFunds, Inc.	246,860	0	0	0	0	0	0

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Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Oracle Investment Management, Inc.	2,890,008	2,815,912	3,371,199	3,538,231	1,871,459	1,537,409	1,487,349
Oregon Public Employees Retirement System	8,282	8,272	8,572	8,672	11,572	11,672	12,174
O'Shaughnessy Asset Management, LLC	4,102	4	0	0	0	0	0
OxFORD Asset Management	0	0	0	186,190	83,491	110,806	44,647
Pacific Alternative Asset Management Company, LLC	0	0	0	0	0	0	0
Palisade Capital Management, LLC	745,672	766,112	634,819	330,000	592,685	620,645	680,051
Paloma Partners Management Company	0	0	0	7,468	0	0	0
PanAgora Asset Management Inc.	0	0	0	0	7,453	0	0
Paradigm Asset Management Company, L.L.C.	4,350	4,350	4,550	1,250	1,350	1,150	1,150
Parametric Portfolio Associates LLC	48,867	55,687	49,042	44,908	47,227	46,665	31,473
Park West Asset Management LLC	0	0	0	0	0	0	0
Partner Fund Management, L.L.C.	111,657	0	0	0	0	0	0
Passport Capital LLC	2,757,600	2,568,200	2,011,246	1,116,400	648,336	400,180	400,000
Pax World Management LLC	29,500	31,814	21,500	19,988	16,441	16,540	16,547
PDT Partners Fusion Fund, LLC_NLE	0	0	17,099	15,999	9,299	9,299	9,299
PDT Partners, LLC	0	0	0	0	0	0	0
Peak 6 Capital Management, LLC	0	879	18,576	18,576	3,138	4,473	5,888
Pennsylvania Public School Employees Retirement System	14,100	33,727	0	0	0	0	8,356
Perceptive Advisors LLC	60,000	0	187,377	0	0	30,000	0
Peregrine Capital Management, LLC	0	0	0	0	0	0	138,840
Perella Weinberg Partners Capital Management LP	0	148,574	0	0	0	0	0
Perimeter Capital Management, LLC_NLE	0	0	183,873	288,906	280,435	148,565	107,524
Pershing, L.L.CNLE	17	1	296	1	27	58	1
Peter B. Cannell & Co. Inc.	0	0	0	0	0	0	0
Picton Mahoney Asset Management	0	0	0	0	0	0	6,500
Pine River Capital Management, L.P.	0	0	0	0	0	0	0
PineBridge Investments LLC	300	0	0	0	0	0	0
Placemark Investments, Inc.	8,896	8,950	7,712	6,392	0	0	0
PNC Capital Advisors, LLC	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Oracle Investment Management, Inc.	1,487,349	1,904,949	2,236,349	2,072,700	1,756,204	1,466,304	1,222,000
Oregon Public Employees Retirement System	12,408	12,599	12,299	16,199	16,299	16,299	16,499
O'Shaughnessy Asset Management, LLC	0	0	0	0	0	0	0
OxFORD Asset Management	32,655	0	60,795	219,720	101,759	0	0
Pacific Alternative Asset Management Company, LLC	0	0	0	19,653	42,863	29,551	0
Palisade Capital Management, LLC	712,506	890,359	863,672	866,874	832,117	790,423	0
Paloma Partners Management Company	0	0	0	36,916	0	7,964	0
PanAgora Asset Management Inc.	0	0	888	0	0	0	16,796
Paradigm Asset Management Company, L.L.C.	1,150	1,150	0	0	0	0	0
Parametric Portfolio Associates LLC	30,356	28,334	28,633	31,506	43,119	56,461	53,320
Park West Asset Management LLC	0	0	0	150,000	400,000	430,372	274,472
Partner Fund Management, L.L.C.	0	0	0	0	0	0	0
Passport Capital LLC	225,000	0	364,093	0	0	0	0
Pax World Management LLC	24,617	0	0	0	0	0	0
PDT Partners Fusion Fund, LLC_NLE	9,299	9,299	9,299	9,299	9,299	0	0
PDT Partners, LLC	0	26,214	31,520	0	86,680	19,148	0
Peak 6 Capital Management, LLC	10,085	12,016	41,885	12,648	0	0	0
Pennsylvania Public School Employees Retirement System	8,201	8,158	8,166	7,995	7,928	7,909	7,813
Perceptive Advisors LLC	0	0	0	0	0	0	147,501
Peregrine Capital Management, LLC	142,350	125,220	0	0	0	0	0
Perella Weinberg Partners Capital Management LP	141,510	0	0	0	0	0	0
Perimeter Capital Management, LLC_NLE	95,464	67,694	70,535	42,903	25,965	45,483	0
Pershing, L.L.CNLE	1	1	1	1	1	1	1
Peter B. Cannell & Co. Inc.	0	0	0	0	6,040	0	0
Picton Mahoney Asset Management	0	0	0	0	0	0	2,100
Pine River Capital Management, L.P.	14,000	50,802	47,118	77,398	126,227	126,606	0
PineBridge Investments LLC	0	0	0	0	0	0	1,000
Placemark Investments, Inc.	0	0	0	6,576	7,171	6,956	0
PNC Capital Advisors, LLC	265	266	243	243	306	314	314

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
PNC Wealth Management	2,858	3,390	24,059	25,977	30,821	15,865	942
Point72 Asset Management, L.P.	17,879	41,581	44,462	58,271	16,359	12,255	26,770
PointState Capital LP	0	0	0	0	0	0	237,900
Portolan Capital Management, L.L.C.	0	18,045	0	0	0	0	0
Prelude Capital Management, LLC	0	0	0	262	0	0	0
Princeton Alpha Management LP	0	0	0	0	0	0	0
Principal Funds, Inc.	0	0	0	0	0	0	0
Principal Global Investors (Equity)	89,177	106,735	123,456	124,822	127,906	135,520	137,753
Principal Management Corporation	0	0	0	0	0	0	0
ProFund Advisors LLC	12,264	8,944	8,272	19,723	6,974	29,955	25,920
Prudential Financial Securities Invt.Trust Enterprise Ltd.	60,033	0	0	37,364	37,340	37,340	0
Public Employees' Retirement Association of CO	45,000	45,000	29,853	29,812	29,861	29,861	29,844
Putnam Investment Management, L.L.C.	42,281	42,437	42,868	0	0	0	0
QA3 Financial LLC_NLE	100	100	0	0	0	0	0
QS Investors, LLC	0	9,800	0	0	0	0	39,200
Quantbot Technologies, LP	0	0	0	0	0	0	0
Quantitative Investment Management LLC	0	11,500	0	19,300	0	0	0
Quantitative Management Associates LLC	27,599	56,839	67,739	67,339	180,507	198,307	228,870
R. H. Bluestein & Company	9,000	9,000	9,000	9,000	9,000	8,000	7,000
Radium Fund Advisors LLC_NLE	0	0	0	30,384	0	0	0
Rainier Investment Management, LLC	714,660	1,028,210	1,013,090	587,780	0	0	0
RAM Active Investments S.A.	0	0	0	0	0	0	0
Ranger Investment Management, L.P.	0	0	0	0	0	15,415	15,415
RBC Capital Markets Wealth Management	32	104	108	2,108	2,108	5,195	4,344
RBC Capital Partners	20,613	8,790	0	0	0	0	2,059
RBC Dominion Securities, Inc.	0	0	0	0	0	0	68
RBC Global Asset Management (U.S.) Inc.	60,500	60,500	45,300	52,720	0	0	0
RBC Wealth Management, International	0	0	0	0	0	134	134
RCM Capital Management LLC_NLE	0	0	1,995	1,995	7,615	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
PNC Wealth Management	849	892	1,266	1,268	1,057	1,198	562
Point72 Asset Management, L.P.	8,831	8,078	230,009	31,350	82,293	0	0
PointState Capital LP	0	0	0	0	0	0	0
Portolan Capital Management, L.L.C.	0	0	0	70,566	70,566	70,566	158,956
Prelude Capital Management, LLC	0	0	0	800	0	0	0
Princeton Alpha Management LP	0	0	0	11,134	0	0	0
Principal Funds, Inc.	0	0	14,540	14,540	14,540	40,039	11,209
Principal Global Investors (Equity)	144,207	141,862	145,593	146,048	152,425	148,113	153,260
Principal Management Corporation	0	0	4,800	5,700	6,510	6,510	0
ProFund Advisors LLC	8,394	10,118	55,798	60,731	81,320	69,777	62,259
Prudential Financial Securities Invt.Trust Enterprise Ltd.	0	0	0	0	0	0	0
Public Employees' Retirement Association of CO	19,952	19,952	11,798	11,798	11,798	11,798	11,798
Putnam Investment Management, L.L.C.	75,113	74,838	74,838	133,712	131,090	131,130	94,584
QA3 Financial LLC_NLE	0	0	0	0	0	0	0
QS Investors, LLC	11,200	0	0	0	0	0	0
Quantbot Technologies, LP	0	0	0	1,336	6,512	394	0
Quantitative Investment Management LLC	0	0	0	0	0	0	0
Quantitative Management Associates LLC	333,020	386,390	169,240	125,440	126,040	211,770	94,540
R. H. Bluestein & Company	7,000	7,000	7,000	7,000	33,750	17,050	7,500
Radium Fund Advisors LLC_NLE	0	0	0	0	0	0	0
Rainier Investment Management, LLC	0	0	0	0	0	0	0
RAM Active Investments S.A.	0	0	0	4,601	4,601	0	0
Ranger Investment Management, L.P.	0	0	0	0	0	0	0
RBC Capital Markets Wealth Management	7,666	7,572	7,543	3,961	3,961	3,308	3,613
RBC Capital Partners	2,094	0	14,247	6,690	0	0	0
RBC Dominion Securities, Inc.	0	0	0	0	0	1,000	12,100
RBC Global Asset Management (U.S.) Inc.	0	0	0	0	0	0	0
RBC Wealth Management, International	134	134	134	267	134	134	134
RCM Capital Management LLC_NLE	0	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Redmile Group, LLC	415,000	0	0	0	0	0	0
Regal Investment Advisors, LLC	0	0	0	0	0	0	0
Regions Investment Management, Inc.	0	0	0	0	0	0	0
Renaissance Technologies LLC	33,339	15,400	165,500	590,039	1,040,939	1,116,339	1,158,739
Research Affiliates, LLC	1,219	1,219	1,219	1,219	1,219	1,219	0
Rhenman & Partners Asset Management AB	10,000	10,000	20,000	20,000	35,000	35,000	35,000
Rhumbline Advisers Ltd. Partnership	111,311	112,271	107,841	101,251	99,893	99,155	99,948
Rice Hall James & Associates, LLC	353,212	372,873	375,779	373,274	0	0	0
Riggs Asset Management Company Inc.	0	0	0	0	0	0	0
Riverbridge Partners, LLC	0	0	0	0	0	0	0
RiverPoint Capital Management, LLC	0	0	0	0	0	0	0
Rock Springs Capital Management LP	0	0	0	0	0	0	0
Rockefeller Financial	12,460	8,450	8,850	7,160	5,355	4,195	3,825
Rockland Trust Company	14,125	0	0	12,000	0	0	0
Ropes & Gray LLP	0	0	0	0	0	0	1,400
Royal Alliance Associates, Inc.	0	0	0	0	0	0	0
Royal Bank of Canada Investment Mgmt (UK) Ltd.	0	0	0	0	0	0	0
Royce & Associates, LP	1,636,600	1,525,000	1,364,000	1,151,000	1,440,500	1,047,200	969,900
Russell Trust Company	0	0	0	0	33,959	29	29
S Squared Technology, LLC	196,600	327,000	275,300	191,800	141,600	0	0
Samlyn Capital, LLC	0	0	0	0	0	0	0
San Francisco Sentry Investment Group	0	0	0	0	0	0	0
Santa Fe Partners LLC_NLE	0	0	0	9,043	0	9,183	11,810
SB Schonfeld Fund Advisors LLC_NLE	7,800	7,800	0	0	0	0	0
Schonfeld Group Holdings LLC	0	0	0	0	0	0	0
Schweizerische Nationalbank	0	0	0	0	0	0	0
Seaward Management LP	0	0	0	0	0	0	449,069
SECOR Capital Advisors, LP	0	0	0	0	0	0	0
Sector Gamma ASA	64,700	0	0	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Redmile Group, LLC	0	0	0	0	0	0	0
Regal Investment Advisors, LLC	120	120	120	140	140	160	180
Regions Investment Management, Inc.	0	0	0	36,510	41,473	43,077	0
Renaissance Technologies LLC	1,579,239	1,610,239	1,225,939	1,049,039	1,050,949	923,939	132,939
Research Affiliates, LLC	0	0	0	0	0	0	0
Rhenman & Partners Asset Management AB	35,000	25,000	25,000	75,000	68,788	67,500	133,800
Rhumbline Advisers Ltd. Partnership	103,125	99,522	101,880	98,478	95,398	87,074	86,114
Rice Hall James & Associates, LLC	0	0	0	0	0	0	0
Riggs Asset Management Company Inc.	0	0	0	0	0	0	500
Riverbridge Partners, LLC	0	0	0	80,770	70,709	59,303	0
RiverPoint Capital Management, LLC	0	0	0	0	0	0	7,804
Rock Springs Capital Management LP	0	0	0	275,000	401,000	492,200	521,000
Rockefeller Financial	6,465	6,959	6,637	6,706	6,950	16,089	7,180
Rockland Trust Company	0	0	0	0	0	0	0
Ropes & Gray LLP	1,400	1,400	1,400	1,400	1,400	1,400	0
Royal Alliance Associates, Inc.	0	0	36	36	36	25	25
Royal Bank of Canada Investment Mgmt (UK) Ltd.	0	0	133	133	133	133	133
Royce & Associates, LP	841,900	913,900	728,900	641,900	622,900	622,900	348,300
Russell Trust Company	31,697	11,219	23,447	13,100	0	0	0
S Squared Technology, LLC	0	0	0	0	0	0	0
Samlyn Capital, LLC	0	0	119,440	314,440	470,717	0	0
San Francisco Sentry Investment Group	4,200	4,200	4,200	4,200	0	0	0
Santa Fe Partners LLC_NLE	18,256	25,160	0	20,530	6,219	6,570	0
SB Schonfeld Fund Advisors LLC_NLE	0	0	0	0	0	0	0
Schonfeld Group Holdings LLC	0	0	0	0	6,033	0	0
Schweizerische Nationalbank	0	53,200	50,300	50,700	64,400	64,400	62,900
Seaward Management LP	510,316	522,673	535,291	557,651	570,281	562,453	0
SECOR Capital Advisors, LP	0	0	0	0	0	11,704	0
Sector Gamma ASA	174,000	200,000	230,000	270,100	387,300	558,300	628,300

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Sectoral Asset Management Inc.	786,526	711,014	729,369	1,098,291	510,556	470,353	470,353
SEI Trust Company (Sibling)	0	0	0	0	0	0	0
Seven Eight Capital, LP	0	0	0	0	0	0	0
SG Americas Securities, L.L.C.	25,187	5,167	13,414	4,985	6,893	6,744	7,752
Shelton Capital Management	7,217	7,217	7,217	7,217	6,583	6,583	6,583
Sigma Capital Management, L.L.CNLE	0	0	0	0	60,000	0	0
Sit Investment Associates, Inc.	192,445	211,905	211,620	192,620	201,620	201,620	198,720
Smith Asset Management Group, LP	0	194,520	194,520	194,520	143,694	143,694	143,694
Soros Fund Management, L.L.C.	0	400	0	0	0	0	0
SpiderRock Trading LLC_NLE	0	0	200	0	0	0	0
Spot Trading LLC	0	0	0	2,600	8,387	4,605	0
Stafford Asset Management LLC	11,458	11,458	11,458	11,458	11,458	11,458	0
Standard Life Investments Ltd.	8,500	8,500	0	0	0	0	0
STANLIB Asset Management Ltd.	0	0	0	0	0	0	700
State of Wisconsin Investment Board	96,991	110,571	213,191	191,771	59,081	52,551	53,561
State Street Global Advisors (UK) Ltd.	0	0	0	0	0	0	0
State Street Global Advisors (US)	1,498,034	1,366,405	1,390,270	1,381,849	1,458,257	1,831,204	1,780,165
State Teachers Retirement System of Ohio	0	0	0	0	0	8,500	3,093
Stephens Capital Management	225	74	74	74	89	84	709
Stephens Investment Management Group, LLC	152,319	172,068	172,008	189,243	273,003	287,933	319,788
Sterling Capital Management, LLC	20,081	21,529	20,672	19,851	19,637	21,079	20,172
Stevens Capital Management LP	18,500	21,075	20,027	24,167	40,268	45,537	32,369
Stonehage Fleming Family and Partners	0	0	9,815	9,815	9,815	0	0
Stux Capital Management, LLC	10,500	0	0	0	11,510	12,900	0
Sullivan, Bruyette, Speros & Blayney, LLC	0	0	200	0	0	0	0
SunAmerica Asset Management, LLC	128,023	130,282	134,226	127,252	127,705	128,035	125,364
SunTrust Bank	0	0	0	8,707	8,429	7,704	3,559
Susquehanna Financial Group, LLLP	10,124	45,947	20,738	0	0	0	0
Swedbank Robur Fonder AB	0	0	0	0	0	80,047	127,923

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
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Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Sectoral Asset Management Inc.	470,328	470,118	0	0	0	0	0
SEI Trust Company (Sibling)	0	15,420	15,590	23,100	15,260	15,260	0
Seven Eight Capital, LP	0	0	0	1,500	0	0	0
SG Americas Securities, L.L.C.	86,316	4,368	34,736	8,747	6,945	19,387	32,610
Shelton Capital Management	6,583	6,583	6,583	6,583	6,583	6,583	0
Sigma Capital Management, L.L.CNLE	0	0	0	0	0	0	0
Sit Investment Associates, Inc.	171,325	127,740	79,050	55,350	55,350	91,040	0
Smith Asset Management Group, LP	571,654	0	0	0	0	0	0
Soros Fund Management, L.L.C.	0	0	0	0	0	0	0
SpiderRock Trading LLC_NLE	100	400	100	200	0	0	4,900
Spot Trading LLC	0	0	0	163	6,754	310	54,284
Stafford Asset Management LLC	0	0	0	0	0	0	0
Standard Life Investments Ltd.	0	0	0	0	0	0	0
STANLIB Asset Management Ltd.	700	700	700	700	700	0	0
State of Wisconsin Investment Board	50,311	130,000	130,000	80,000	80,000	0	160,000
State Street Global Advisors (UK) Ltd.	13,472	13,472	13,215	36,162	36,216	15,343	29,089
State Street Global Advisors (US)	2,128,510	2,567,581	2,490,460	2,059,390	2,057,088	2,043,035	1,997,239
State Teachers Retirement System of Ohio	0	23,000	14,700	18,900	18,100	1,700	0
Stephens Capital Management	625	0	0	0	0	0	0
Stephens Investment Management Group, LLC	301,730	310,670	428,630	437,305	456,170	456,635	0
Sterling Capital Management, LLC	17,660	11,386	10,146	43,819	56,423	18,247	0
Stevens Capital Management LP	57,269	47,876	29,570	75,928	40,480	0	0
Stonehage Fleming Family and Partners	0	0	0	0	0	0	0
Stux Capital Management, LLC	0	0	0	0	0	0	0
Sullivan, Bruyette, Speros & Blayney, LLC	0	0	0	0	0	0	0
SunAmerica Asset Management, LLC	120,364	119,909	157,714	153,218	153,748	149,487	149,306
SunTrust Bank	3,455	2,201	1,996	1,976	1,813	0	0
Susquehanna Financial Group, LLLP	26,641	15,639	46,005	35,901	15,494	120,682	10,488
Swedbank Robur Fonder AB	0	0	0	0	0	259,813	259,813

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Systematic Financial Management, L.P.	0	0	0	0	0	0	0
T. Rowe Price Associates, Inc.	371,392	197,592	182,672	184,042	217,752	247,352	228,552
TAMRO Capital Partners, LLC_NLE	0	0	0	0	0	0	0
TCW Asset Management Company	10,895	0	0	0	0	0	0
TD Asset Management Inc.	0	0	0	0	0	0	0
Teacher Retirement System of Texas	0	0	0	10,120	8,950	20,263	9,230
Tekla Capital Management LLC	0	0	0	0	0	0	0
Templeton Investment Counsel, L.L.C.	77,200	77,000	71,110	61,810	61,100	0	0
Tesseract Capital LLC_NLE	836	836	0	0	0	0	0
Teton Advisors, Inc.	5,450	5,200	4,500	4,500	4,400	3,900	3,800
Texas Permanent School Fund	72,874	75,664	77,449	71,730	71,834	72,529	72,701
TFS Capital LLC	0	47,209	89,528	0	209,965	48,390	17,448
The Boston Company Asset Management, LLC	126,670	234,368	325,700	409,019	403,425	399,458	358,319
The Commerce Trust Company	0	0	0	0	0	0	0
The MassMutual Trust Company, FSB	0	0	0	0	0	0	0
The Northern Trust Company of Connecticut_NLE	58,957	79,116	63,047	61,812	63,171	62,056	62,962
The Private Trust Company, N.A.	202	197	114	89	89	89	89
The Retirement Planning Group, Inc.	119	101	92	72	80	46	0
The Retirement Systems of Alabama	0	0	0	0	0	0	0
The Royal Bank of Scotland	0	0	0	0	0	0	0
The Royal Bank of Scotland N.VNLE	14,647	0	8,964	15,599	0	0	0
The Vanguard Group, Inc.	2,772,346	2,859,022	3,110,636	3,216,685	3,349,188	3,360,654	3,610,720
Third Point LLC	0	0	0	500,000	1,000,000	0	0
Thompson Investment Management, Inc.	0	0	0	0	0	0	0
Thomson Horstmann & Bryant, Inc.	0	0	83,700	0	0	0	0
Three Zero Three Capital Partners LLC	0	0	0	679	0	0	0
Thrivent Asset Management, LLC	654,800	718,600	719,800	738,800	752,000	1,020,100	1,142,900
Timber Hill LLC	0	17,894	55,141	89,014	0	13,208	10,712
Tocqueville Asset Management LP	140,500	135,550	125,911	92,468	93,811	93,061	69,461

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Systematic Financial Management, L.P.	9,910	47,219	0	46,695	51,190	53,445	94,635
T. Rowe Price Associates, Inc.	236,952	257,552	253,952	1,954,872	1,925,814	1,732,673	5,538,703
TAMRO Capital Partners, LLC_NLE	0	0	0	629	629	629	629
TCW Asset Management Company	0	0	0	0	0	0	0
TD Asset Management Inc.	0	0	0	45,900	47,800	36,200	96,700
Teacher Retirement System of Texas	6,426	3,923	7,287	2,147	2,075	2,075	2,015
Tekla Capital Management LLC	0	0	0	0	0	0	113,300
Templeton Investment Counsel, L.L.C.	0	0	0	0	0	0	0
Tesseract Capital LLC_NLE	0	0	0	0	0	0	0
Teton Advisors, Inc.	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Texas Permanent School Fund	64,794	64,285	60,916	59,943	57,311	57,510	51,055
TFS Capital LLC	0	0	0	7,759	0	0	0
The Boston Company Asset Management, LLC	371,737	254,626	130,059	132,004	132,004	336,431	124,494
The Commerce Trust Company	30,153	26,348	0	0	0	0	0
The MassMutual Trust Company, FSB	0	0	0	0	28	0	0
The Northern Trust Company of Connecticut_NLE	32,386	32,386	32,386	32,386	0	0	0
The Private Trust Company, N.A.	89	112	134	152	140	140	71
The Retirement Planning Group, Inc.	0	0	0	0	0	0	0
The Retirement Systems of Alabama	71,870	70,225	70,526	70,526	188,775	187,875	70,212
The Royal Bank of Scotland	0	0	8,072	0	0	0	0
The Royal Bank of Scotland N.VNLE	0	0	0	0	0	0	0
The Vanguard Group, Inc.	3,690,825	3,762,963	3,735,124	3,842,836	3,940,778	3,936,569	3,427,752
Third Point LLC	0	0	0	0	0	0	0
Thompson Investment Management, Inc.	0	0	0	0	0	0	8,000
Thomson Horstmann & Bryant, Inc.	0	0	0	0	0	0	0
Three Zero Three Capital Partners LLC	0	0	0	0	0	0	0
Thrivent Asset Management, LLC	1,085,600	1,155,300	1,159,600	1,120,550	256,350	0	0
Timber Hill LLC	6,883	0	37,684	30,037	0	0	33,619
Tocqueville Asset Management LP	81,961	80,761	10,000	10,000	12,000	19,000	25,000

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Tower Research Capital LLC	0	0	0	0	0	0	0
TowerView, L.L.C.	0	0	10,000	0	0	0	0
Tradeworx Inc.	0	0	0	0	0	0	11,181
Trellus Management Company, LLC	434,500	0	0	47,981	0	0	0
Tryphon Capital Advisers, Inc.	44,026	0	0	0	0	0	0
Tudor Investment Corporation	0	0	0	0	8,300	0	0
Turner Investment Partners, Inc.	0	0	0	0	42,640	0	0
TWIN Capital Management, Inc.	0	39,480	42,900	43,100	43,800	0	0
Two Sigma Investments, LP	35,300	18,848	0	356,190	279,768	188,469	0
U.S. Bancorp Asset Management, Inc.	14,668	11,659	10,771	10,431	10,972	11,070	9,239
UBS Asset Management (Americas), Inc.	238,194	180,706	177,547	176,085	165,038	158,251	157,690
UBS Asset Management (Japan) Ltd.	191,700	191,700	0	0	0	0	0
UBS Asset Management (Switzerland)	469,305	133,217	47,643	50,643	50,643	17,255	0
UBS Asset Management (UK) Ltd.	0	0	0	0	7,335	7,335	7,335
UBS Financial Services, Inc.	124,357	102,020	56,775	13,426	52,317	69,614	54,873
UBS O'Connor LLC	0	0	168,366	31,400	301,449	120,253	293,101
UOB Asset Management Ltd.	0	0	0	0	0	0	0
Utah Retirement Systems	0	0	0	0	0	8,722	8,722
Valentine Capital Asset Management, IncNLE	0	0	15,660	10,445	10,445	10,445	10,445
Vantage Investment Advisory Limited	0	0	0	0	0	0	0
Vident Investment Advisory, LLC	0	0	0	0	0	0	0
Vinik Asset Management, L.PNLE	0	0	0	0	0	12,500	10,500
Virginia Retirement System	0	0	8,700	10,200	20,300	23,100	25,800
Visium Asset Management, LP_NLE	355,488	351,230	160,000	0	203,044	192,451	0
Voya Investment Management LLC	695,215	614,215	632,915	462,415	578,419	583,936	474,945
Waddell & Reed Investment Management Company	18,850	18,850	18,850	18,850	0	258,600	316,200
Walleye Trading, LLC	0	0	0	0	0	0	0
Warren Averett Asset Management, LLC	0	0	0	0	0	0	0
Waterstone Capital Management, L.P.	0	0	0	119,900	169,900	108,900	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Tower Research Capital LLC	0	5,462	2,403	0	474	90	412
TowerView, L.L.C.	0	0	0	0	0	0	0
Tradeworx Inc.	0	0	0	0	0	0	0
Trellus Management Company, LLC	0	0	0	0	0	0	0
Tryphon Capital Advisers, Inc.	0	0	0	0	0	0	0
Tudor Investment Corporation	8,800	14,300	0	11,982	13,026	18,138	33,802
Turner Investment Partners, Inc.	0	0	0	0	0	0	0
TWIN Capital Management, Inc.	0	0	0	0	0	0	0
Two Sigma Investments, LP	590,228	425,997	245,060	572,424	661,998	582,122	0
U.S. Bancorp Asset Management, Inc.	9,460	11,186	10,422	23,610	21,886	24,180	7,326
UBS Asset Management (Americas), Inc.	159,568	128,284	132,847	126,571	111,946	86,911	144,934
UBS Asset Management (Japan) Ltd.	0	0	0	0	0	0	0
UBS Asset Management (Switzerland)	34,800	19,998	19,098	20,298	20,298	54,898	111,898
UBS Asset Management (UK) Ltd.	9,435	0	0	0	0	0	0
UBS Financial Services, Inc.	42,215	47,411	35,126	45,353	33,633	49,958	73,853
UBS O'Connor LLC	0	0	0	0	0	0	0
UOB Asset Management Ltd.	0	0	0	2,800	2,800	7,830	7,830
Utah Retirement Systems	10,622	0	0	0	0	0	0
Valentine Capital Asset Management, IncNLE	10,445	10,445	10,445	10,445	0	0	0
Vantage Investment Advisory Limited	0	0	0	82	82	82	82
Vident Investment Advisory, LLC	0	0	0	0	0	0	8,349
Vinik Asset Management, L.PNLE	0	0	0	0	0	0	0
Virginia Retirement System	30,200	29,200	29,200	8,800	8,600	8,600	0
Visium Asset Management, LP_NLE	0	525,563	58,457	0	0	0	296,574
Voya Investment Management LLC	507,777	731,983	961,083	995,083	1,109,669	1,100,404	1,098,549
Waddell & Reed Investment Management Company	351,800	351,800	351,800	324,200	324,200	324,200	0
Walleye Trading, LLC	0	0	0	1,587	0	0	15,481
Warren Averett Asset Management, LLC	0	0	0	47	47	47	47
Waterstone Capital Management, L.P.	0	269,500	216,800	0	0	0	0

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	98.7%	94.1%	96.9%	96.3%	94.1%	93.3%	91.3%
Short Interest	3,483,665	3,212,599	1,924,553	2,481,881	1,615,592	1,996,812	3,558,781
Shares Outstanding	57,209,000	59,742,000	59,928,000	58,431,000	58,670,000	58,823,000	58,757,000
Shares Held by Insiders	279,601	242,401	207,010	192,769	171,910	160,651	171,117
Shares Held by Institutions	59,624,073	59,022,984	59,747,399	58,485,795	56,591,447	56,570,078	56,722,375
Number of Institutions With Holdings	286	292	285	306	293	281	287

Institution	6/30/2011	9/30/2011	12/31/2011	3/31/2012	6/30/2012	9/30/2012	12/31/2012
Weaver C. Barksdale & Associates, Inc.	0	0	0	0	0	0	0
WEDGE Capital Management, L.L.P.	0	0	0	0	0	0	0
Weiss Multi-Strategy Advisers LLC	50,000	0	0	35,000	10,000	10,000	10,000
Wellington Management Company, LLP	47,006	35,930	34,830	16,130	15,930	0	0
Wellington Shields & Co. LLC	11,040	11,437	11,137	12,221	11,687	11,529	11,029
Wells Capital Management Inc.	755,491	763,434	714,022	682,991	1,443,733	2,266,011	2,117,263
Wells Fargo Advisors	18,662	49,191	18,222	18,853	16,565	51,755	76,855
Wells Fargo Bank, N.A.	7,280	100	0	1	27,289	15,308	37,708
Wells Fargo Securities, LLC	0	0	0	0	0	0	0
Westfield Capital Management Company, L.P.	0	0	0	0	0	0	0
WFG Advisors LP	0	411	411	317	300	300	300
Whitebox Advisors, L.L.C.	0	0	0	0	13,184	0	0
Whittier Trust Company	0	0	3,400	3,400	3,400	0	0
WHV Investment Management, Inc.	576,500	0	0	0	0	0	0
William Blair & Company, L.L.C. (Research)	17,538	17,538	17,538	17,538	17,538	0	0
Wilmington Funds Management Corporation	0	0	0	0	0	0	0
Wilmington Trust Investment Advisors, Inc.	30,700	24,125	0	0	0	0	0
Wilmington Trust Investment Management LLC	2,100	2,100	2,100	2,100	2,100	2,100	100
Wilmington Trust, National Association	0	0	0	0	0	0	0
Winslow, Evans & Crocker, Inc.	0	0	0	0	0	0	0
Winton Capital Management Ltd.	0	0	0	0	0	0	0
Wolverine Asset Management, LLC	0	0	0	0	0	700	1,800
World Asset Management, Inc.	52,723	54,771	55,286	54,611	54,095	55,288	51,308
Yorktown Management & Research Company, Inc.	0	0	0	0	0	0	0
Zacks Investment Management, Inc.	0	0	0	0	10,761	0	0
Ziegler Capital Management, LLC	0	0	0	9,346	10,886	21,162	11,318
Zürcher Kantonalbank (Asset Management)	0	0	51,935	96,200	60,000	71,200	7,500

Thoratec Corp. Quarterly Institutional Holdings

Available Shares Held by Institutions	91.2%	92.9%	89.0%	91.9%	88.7%	87.2%	88.8%
Short Interest	3,126,212	1,144,076	2,226,864	2,282,278	2,546,925	3,314,006	4,627,874
Shares Outstanding	57,605,000	57,330,000	57,528,000	56,971,000	56,778,000	56,800,000	56,300,000
Shares Held by Insiders	162,706	200,845	200,845	180,288	275,628	319,134	439,211
Shares Held by Institutions	55,213,236	54,127,652	52,975,088	54,294,919	52,368,696	52,127,375	53,739,816
Number of Institutions With Holdings	294	272	266	299	297	294	274

Institution	3/31/2013	6/30/2013	9/30/2013	12/31/2013	3/31/2014	6/30/2014	9/30/2014
Weaver C. Barksdale & Associates, Inc.	0	62	54	54	60	70	85
WEDGE Capital Management, L.L.P.	0	0	0	0	0	0	14,825
Weiss Multi-Strategy Advisers LLC	40,000	110,000	102,440	75,650	76,000	76,920	103,000
Wellington Management Company, LLP	24,494	23,825	0	77,903	202,035	214,165	217,290
Wellington Shields & Co. LLC	11,029	11,029	11,029	10,654	10,654	10,654	10,454
Wells Capital Management Inc.	1,710,879	2,042,318	1,156,758	1,185,042	1,244,081	1,383,939	1,057,212
Wells Fargo Advisors	101,445	108,563	173,795	191,158	195,686	211,053	90,815
Wells Fargo Bank, N.A.	37,835	28,509	19,566	15,534	13,238	17,056	15,177
Wells Fargo Securities, LLC	0	0	0	0	0	674	0
Westfield Capital Management Company, L.P.	0	0	0	0	36,460	36,460	0
WFG Advisors LP	300	300	300	300	300	300	300
Whitebox Advisors, L.L.C.	0	0	0	0	0	78,861	0
Whittier Trust Company	0	0	0	0	0	0	0
WHV Investment Management, Inc.	0	0	405,500	0	0	0	0
William Blair & Company, L.L.C. (Research)	0	7,934	0	0	0	0	0
Wilmington Funds Management Corporation	0	0	0	5,710	5,710	0	5,710
Wilmington Trust Investment Advisors, Inc.	0	0	0	0	53	0	0
Wilmington Trust Investment Management LLC	100	100	2,050	2,050	2,050	2,050	1,010
Wilmington Trust, National Association	0	0	0	0	0	0	4,777
Winslow, Evans & Crocker, Inc.	0	0	0	190	190	190	190
Winton Capital Management Ltd.	0	9,068	0	0	0	0	0
Wolverine Asset Management, LLC	8,700	8,700	5,700	0	0	800	300
World Asset Management, Inc.	48,785	50,340	50,259	49,088	49,484	39,778	39,855
Yorktown Management & Research Company, Inc.	0	0	0	0	0	0	9,500
Zacks Investment Management, Inc.	0	0	0	0	0	0	0
Ziegler Capital Management, LLC	0	0	0	0	0	0	0
Zürcher Kantonalbank (Asset Management)	15,000	80,000	10,000	0	55,000	0	0

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's S	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
5/11/2011	\$33.20	\$33.21	\$0.01	0.03%
5/12/2011	\$33.39	\$33.43	\$0.04	0.12%
5/13/2011	\$33.75	\$33.75	\$0.00	0.00%
5/16/2011	\$33.60	\$33.62	\$0.02	0.06%
5/17/2011	\$33.09	\$33.10	\$0.01	0.03%
5/18/2011	\$34.63	\$34.64	\$0.01	0.03%
5/19/2011	\$35.69	\$35.70	\$0.01	0.03%
5/20/2011	\$35.22	\$35.23	\$0.01	0.03%
5/23/2011	\$34.64	\$34.65	\$0.01	0.03%
5/24/2011	\$34.07	\$34.08	\$0.01	0.03%
5/25/2011	\$34.36	\$34.37	\$0.01	0.03%
5/26/2011	\$34.67	\$34.70	\$0.03	0.09%
5/27/2011	\$34.79	\$34.80	\$0.01	0.03%
5/31/2011	\$34.75	\$34.77	\$0.02	0.06%
6/1/2011	\$33.75	\$33.76	\$0.01	0.03%
6/2/2011	\$33.52	\$33.53	\$0.01	0.03%
6/3/2011	\$32.96	\$32.99	\$0.03	0.09%
6/6/2011	\$32.23	\$32.27	\$0.04	0.12%
6/7/2011	\$32.20	\$32.21	\$0.01	0.03%
6/8/2011	\$31.90	\$31.92	\$0.02	0.06%
6/9/2011	\$32.14	\$32.16	\$0.02	0.06%
6/10/2011	\$30.99	\$31.01	\$0.02	0.06%
6/13/2011	\$30.59	\$30.60	\$0.01	0.03%
6/14/2011	\$30.76	\$30.77	\$0.01	0.03%
6/15/2011	\$29.85	\$29.86	\$0.01	0.03%
6/16/2011	\$29.98	\$30.00	\$0.02	0.07%
6/17/2011	\$29.98	\$29.99	\$0.01	0.03%
6/20/2011	\$30.94	\$30.95	\$0.01	0.03%
6/21/2011	\$31.25	\$31.26	\$0.01	0.03%
6/22/2011	\$31.03	\$31.05	\$0.02	0.06%
6/23/2011	\$30.45	\$30.47	\$0.02	0.07%
6/24/2011	\$30.80	\$30.81	\$0.01	0.03%
6/27/2011	\$30.93	\$30.94	\$0.01	0.03%
6/28/2011	\$31.75	\$31.77	\$0.02	0.06%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
6/29/2011	\$31.73	\$31.77	\$0.04	0.13%
6/30/2011	\$32.82	\$32.83	\$0.01	0.03%
7/1/2011	\$33.63	\$33.64	\$0.01	0.03%
7/5/2011	\$33.75	\$33.76	\$0.01	0.03%
7/6/2011	\$34.57	\$34.58	\$0.01	0.03%
7/7/2011	\$35.44	\$35.45	\$0.01	0.03%
7/8/2011	\$35.41	\$35.42	\$0.01	0.03%
7/11/2011	\$35.01	\$35.02	\$0.01	0.03%
7/12/2011	\$35.13	\$35.14	\$0.01	0.03%
7/13/2011	\$35.52	\$35.53	\$0.01	0.03%
7/14/2011	\$35.01	\$35.03	\$0.02	0.06%
7/15/2011	\$35.00	\$35.01	\$0.01	0.03%
7/18/2011	\$35.02	\$35.03	\$0.01	0.03%
7/19/2011	\$36.63	\$36.65	\$0.02	0.05%
7/20/2011	\$36.21	\$36.23	\$0.02	0.06%
7/21/2011	\$36.09	\$36.10	\$0.01	0.03%
7/22/2011	\$36.08	\$36.10	\$0.02	0.06%
7/25/2011	\$35.50	\$35.52	\$0.02	0.06%
7/26/2011	\$34.94	\$34.96	\$0.02	0.06%
7/27/2011	\$34.18	\$34.19	\$0.01	0.03%
7/28/2011	\$33.88	\$33.90	\$0.02	0.06%
7/29/2011	\$33.66	\$33.69	\$0.03	0.09%
8/1/2011	\$33.52	\$33.56	\$0.04	0.12%
8/2/2011	\$33.25	\$33.29	\$0.04	0.12%
8/3/2011	\$33.85	\$33.86	\$0.01	0.03%
8/4/2011	\$32.45	\$32.46	\$0.01	0.03%
8/5/2011	\$32.54	\$32.55	\$0.01	0.03%
8/8/2011	\$30.48	\$30.39	-\$0.09	-0.30%
8/9/2011	\$31.66	\$31.67	\$0.01	0.03%
8/10/2011	\$30.13	\$30.15	\$0.02	0.07%
8/11/2011	\$31.19	\$31.20	\$0.01	0.03%
8/12/2011	\$31.71	\$31.72	\$0.01	0.03%
8/15/2011	\$31.95	\$31.96	\$0.01	0.03%
8/16/2011	\$31.90	\$31.95	\$0.05	0.16%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock							
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)				
8/17/2011	\$31.91	\$31.93	\$0.02	0.06%				
8/18/2011	\$31.01	\$31.02	\$0.01	0.03%				
8/19/2011	\$30.70	\$30.71	\$0.01	0.03%				
8/22/2011	\$30.94	\$30.95	\$0.01	0.03%				
8/23/2011	\$32.04	\$32.05	\$0.01	0.03%				
8/24/2011	\$31.78	\$31.79	\$0.01	0.03%				
8/25/2011	\$31.28	\$31.29	\$0.01	0.03%				
8/26/2011	\$32.46	\$32.48	\$0.02	0.06%				
8/29/2011	\$33.83	\$33.84	\$0.01	0.03%				
8/30/2011	\$33.83	\$33.84	\$0.01	0.03%				
8/31/2011	\$34.25	\$34.26	\$0.01	0.03%				
9/1/2011	\$33.23	\$33.24	\$0.01	0.03%				
9/2/2011	\$32.05	\$32.08	\$0.03	0.09%				
9/6/2011	\$31.52	\$31.53	\$0.01	0.03%				
9/7/2011	\$32.76	\$32.77	\$0.01	0.03%				
9/8/2011	\$32.01	\$32.04	\$0.03	0.09%				
9/9/2011	\$30.88	\$30.92	\$0.04	0.13%				
9/12/2011	\$30.64	\$30.67	\$0.03	0.10%				
9/13/2011	\$31.16	\$31.17	\$0.01	0.03%				
9/14/2011	\$31.39	\$31.42	\$0.03	0.10%				
9/15/2011	\$31.45	\$31.47	\$0.02	0.06%				
9/16/2011	\$31.86	\$31.88	\$0.02	0.06%				
9/19/2011	\$31.76	\$31.78	\$0.02	0.06%				
9/20/2011	\$32.14	\$32.15	\$0.01	0.03%				
9/21/2011	\$32.20	\$32.21	\$0.01	0.03%				
9/22/2011	\$30.39	\$30.42	\$0.03	0.10%				
9/23/2011	\$31.93	\$31.94	\$0.01	0.03%				
9/26/2011	\$32.75	\$32.76	\$0.01	0.03%				
9/27/2011	\$33.37	\$33.40	\$0.03	0.09%				
9/28/2011	\$32.96	\$32.97	\$0.01	0.03%				
9/29/2011	\$33.16	\$33.17	\$0.01	0.03%				
9/30/2011	\$32.65	\$32.66	\$0.01	0.03%				
10/3/2011	\$32.20	\$32.21	\$0.01	0.03%				
10/4/2011	\$33.21	\$33.25	\$0.04	0.12%				

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
10/5/2011	\$33.78	\$33.84	\$0.06	0.18%
10/6/2011	\$34.65	\$34.67	\$0.02	0.06%
10/7/2011	\$33.76	\$33.77	\$0.01	0.03%
10/10/2011	\$33.87	\$33.88	\$0.01	0.03%
10/11/2011	\$33.97	\$33.98	\$0.01	0.03%
10/12/2011	\$33.89	\$33.91	\$0.02	0.06%
10/13/2011	\$36.11	\$36.13	\$0.02	0.06%
10/14/2011	\$37.13	\$37.15	\$0.02	0.05%
10/17/2011	\$35.98	\$35.99	\$0.01	0.03%
10/18/2011	\$36.54	\$36.56	\$0.02	0.05%
10/19/2011	\$36.22	\$36.45	\$0.23	0.63%
10/20/2011	\$35.51	\$35.76	\$0.25	0.70%
10/21/2011	\$36.12	\$36.13	\$0.01	0.03%
10/24/2011	\$37.30	\$37.34	\$0.04	0.11%
10/25/2011	\$36.91	\$36.92	\$0.01	0.03%
10/26/2011	\$36.36	\$36.39	\$0.03	0.08%
10/27/2011	\$37.35	\$37.36	\$0.01	0.03%
10/28/2011	\$37.17	\$37.20	\$0.03	0.08%
10/31/2011	\$36.51	\$36.55	\$0.04	0.11%
11/1/2011	\$34.84	\$34.89	\$0.05	0.14%
11/2/2011	\$30.45	\$30.46	\$0.01	0.03%
11/3/2011	\$29.41	\$29.44	\$0.03	0.10%
11/4/2011	\$29.40	\$29.41	\$0.01	0.03%
11/7/2011	\$28.99	\$29.00	\$0.01	0.03%
11/8/2011	\$29.98	\$29.99	\$0.01	0.03%
11/9/2011	\$29.13	\$29.14	\$0.01	0.03%
11/10/2011	\$29.50	\$29.51	\$0.01	0.03%
11/11/2011	\$30.56	\$30.59	\$0.03	0.10%
11/14/2011	\$30.04	\$30.05	\$0.01	0.03%
11/15/2011	\$30.21	\$30.22	\$0.01	0.03%
11/16/2011	\$29.84	\$29.88	\$0.04	0.13%
11/17/2011	\$29.55	\$29.56	\$0.01	0.03%
11/18/2011	\$28.25	\$28.27	\$0.02	0.07%
11/21/2011	\$28.24	\$28.27	\$0.03	0.11%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
11/22/2011	\$28.75	\$28.76	\$0.01	0.03%	
11/23/2011	\$28.14	\$28.16	\$0.02	0.07%	
11/25/2011	\$28.24	\$28.25	\$0.01	0.04%	
11/28/2011	\$29.26	\$29.27	\$0.01	0.03%	
11/29/2011	\$29.13	\$29.14	\$0.01	0.03%	
11/30/2011	\$30.40	\$30.42	\$0.02	0.07%	
12/1/2011	\$30.65	\$30.66	\$0.01	0.03%	
12/2/2011	\$30.42	\$30.44	\$0.02	0.07%	
12/5/2011	\$30.98	\$31.01	\$0.03	0.10%	
12/6/2011	\$31.34	\$31.37	\$0.03	0.10%	
12/7/2011	\$31.36	\$31.37	\$0.01	0.03%	
12/8/2011	\$30.10	\$30.13	\$0.03	0.10%	
12/9/2011	\$31.04	\$31.05	\$0.01	0.03%	
12/12/2011	\$30.67	\$30.70	\$0.03	0.10%	
12/13/2011	\$30.35	\$30.39	\$0.04	0.13%	
12/14/2011	\$29.59	\$29.62	\$0.03	0.10%	
12/15/2011	\$30.43	\$30.44	\$0.01	0.03%	
12/16/2011	\$30.49	\$30.50	\$0.01	0.03%	
12/19/2011	\$30.02	\$30.03	\$0.01	0.03%	
12/20/2011	\$30.78	\$30.79	\$0.01	0.03%	
12/21/2011	\$32.03	\$32.05	\$0.02	0.06%	
12/22/2011	\$32.82	\$32.83	\$0.01	0.03%	
12/23/2011	\$33.04	\$33.06	\$0.02	0.06%	
12/27/2011	\$33.12	\$33.13	\$0.01	0.03%	
12/28/2011	\$32.90	\$32.91	\$0.01	0.03%	
12/29/2011	\$33.57	\$33.59	\$0.02	0.06%	
12/30/2011	\$33.54	\$33.55	\$0.01	0.03%	
1/3/2012	\$32.23	\$32.24	\$0.01	0.03%	
1/4/2012	\$31.63	\$31.66	\$0.03	0.09%	
1/5/2012	\$30.38	\$30.40	\$0.02	0.07%	
1/6/2012	\$30.11	\$30.12	\$0.01	0.03%	
1/9/2012	\$29.02	\$29.04	\$0.02	0.07%	
1/10/2012	\$29.48	\$29.49	\$0.01	0.03%	
1/11/2012	\$30.07	\$30.08	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
1/12/2012	\$30.00	\$30.02	\$0.02	0.07%	
1/13/2012	\$29.89	\$29.91	\$0.02	0.07%	
1/17/2012	\$29.71	\$29.72	\$0.01	0.03%	
1/18/2012	\$29.60	\$29.64	\$0.04	0.14%	
1/19/2012	\$29.79	\$29.83	\$0.04	0.13%	
1/20/2012	\$29.12	\$29.14	\$0.02	0.07%	
1/23/2012	\$30.05	\$30.06	\$0.01	0.03%	
1/24/2012	\$30.44	\$30.47	\$0.03	0.10%	
1/25/2012	\$30.90	\$30.91	\$0.01	0.03%	
1/26/2012	\$31.34	\$31.37	\$0.03	0.10%	
1/27/2012	\$31.25	\$31.28	\$0.03	0.10%	
1/30/2012	\$30.97	\$30.98	\$0.01	0.03%	
1/31/2012	\$29.39	\$29.43	\$0.04	0.14%	
2/1/2012	\$30.30	\$30.31	\$0.01	0.03%	
2/2/2012	\$30.75	\$30.76	\$0.01	0.03%	
2/3/2012	\$30.65	\$30.66	\$0.01	0.03%	
2/6/2012	\$30.74	\$30.77	\$0.03	0.10%	
2/7/2012	\$30.96	\$30.99	\$0.03	0.10%	
2/8/2012	\$30.75	\$30.81	\$0.06	0.19%	
2/9/2012	\$34.53	\$34.54	\$0.01	0.03%	
2/10/2012	\$34.19	\$34.20	\$0.01	0.03%	
2/13/2012	\$34.33	\$34.36	\$0.03	0.09%	
2/14/2012	\$34.75	\$34.76	\$0.01	0.03%	
2/15/2012	\$35.30	\$35.32	\$0.02	0.06%	
2/16/2012	\$35.72	\$35.74	\$0.02	0.06%	
2/17/2012	\$35.38	\$35.41	\$0.03	0.08%	
2/21/2012	\$35.21	\$35.22	\$0.01	0.03%	
2/22/2012	\$35.14	\$35.16	\$0.02	0.06%	
2/23/2012	\$34.90	\$34.94	\$0.04	0.11%	
2/24/2012	\$35.01	\$35.04	\$0.03	0.09%	
2/27/2012	\$35.51	\$35.53	\$0.02	0.06%	
2/28/2012	\$35.32	\$35.35	\$0.03	0.08%	
2/29/2012	\$34.48	\$34.50	\$0.02	0.06%	
3/1/2012	\$34.50	\$34.52	\$0.02	0.06%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
3/2/2012	\$34.51	\$34.53	\$0.02	0.06%	
3/5/2012	\$33.94	\$33.97	\$0.03	0.09%	
3/6/2012	\$33.36	\$33.38	\$0.02	0.06%	
3/7/2012	\$33.44	\$33.48	\$0.04	0.12%	
3/8/2012	\$33.48	\$33.50	\$0.02	0.06%	
3/9/2012	\$33.99	\$34.00	\$0.01	0.03%	
3/12/2012	\$33.46	\$33.48	\$0.02	0.06%	
3/13/2012	\$33.66	\$33.67	\$0.01	0.03%	
3/14/2012	\$33.77	\$33.81	\$0.04	0.12%	
3/15/2012	\$34.81	\$34.83	\$0.02	0.06%	
3/16/2012	\$34.21	\$34.22	\$0.01	0.03%	
3/19/2012	\$34.45	\$34.47	\$0.02	0.06%	
3/20/2012	\$34.36	\$34.37	\$0.01	0.03%	
3/21/2012	\$34.56	\$34.58	\$0.02	0.06%	
3/22/2012	\$33.76	\$33.80	\$0.04	0.12%	
3/23/2012	\$33.73	\$33.75	\$0.02	0.06%	
3/26/2012	\$34.19	\$34.20	\$0.01	0.03%	
3/27/2012	\$34.09	\$34.11	\$0.02	0.06%	
3/28/2012	\$34.12	\$34.13	\$0.01	0.03%	
3/29/2012	\$34.08	\$34.10	\$0.02	0.06%	
3/30/2012	\$33.71	\$33.73	\$0.02	0.06%	
4/2/2012	\$34.21	\$34.24	\$0.03	0.09%	
4/3/2012	\$34.33	\$34.34	\$0.01	0.03%	
4/4/2012	\$32.82	\$32.83	\$0.01	0.03%	
4/5/2012	\$32.77	\$32.78	\$0.01	0.03%	
4/9/2012	\$32.15	\$32.16	\$0.01	0.03%	
4/10/2012	\$31.83	\$31.84	\$0.01	0.03%	
4/11/2012	\$32.56	\$32.58	\$0.02	0.06%	
4/12/2012	\$32.90	\$32.92	\$0.02	0.06%	
4/13/2012	\$32.41	\$32.42	\$0.01	0.03%	
4/16/2012	\$32.30	\$32.32	\$0.02	0.06%	
4/17/2012	\$33.38	\$33.41	\$0.03	0.09%	
4/18/2012	\$33.66	\$33.67	\$0.01	0.03%	
4/19/2012	\$34.15	\$34.16	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
4/20/2012	\$33.56	\$33.58	\$0.02	0.06%
4/23/2012	\$32.95	\$32.96	\$0.01	0.03%
4/24/2012	\$33.38	\$33.40	\$0.02	0.06%
4/25/2012	\$33.69	\$33.70	\$0.01	0.03%
4/26/2012	\$34.75	\$34.76	\$0.01	0.03%
4/27/2012	\$35.21	\$35.23	\$0.02	0.06%
4/30/2012	\$34.76	\$34.81	\$0.05	0.14%
5/1/2012	\$34.47	\$34.51	\$0.04	0.12%
5/2/2012	\$34.45	\$34.46	\$0.01	0.03%
5/3/2012	\$33.90	\$33.92	\$0.02	0.06%
5/4/2012	\$32.86	\$32.87	\$0.01	0.03%
5/7/2012	\$32.98	\$33.00	\$0.02	0.06%
5/8/2012	\$32.46	\$32.48	\$0.02	0.06%
5/9/2012	\$32.38	\$32.39	\$0.01	0.03%
5/10/2012	\$33.07	\$33.09	\$0.02	0.06%
5/11/2012	\$33.23	\$33.24	\$0.01	0.03%
5/14/2012	\$32.44	\$32.45	\$0.01	0.03%
5/15/2012	\$32.12	\$32.14	\$0.02	0.06%
5/16/2012	\$31.88	\$31.89	\$0.01	0.03%
5/17/2012	\$31.35	\$31.36	\$0.01	0.03%
5/18/2012	\$30.99	\$31.00	\$0.01	0.03%
5/21/2012	\$31.39	\$31.42	\$0.03	0.10%
5/22/2012	\$31.21	\$31.23	\$0.02	0.06%
5/23/2012	\$31.36	\$31.37	\$0.01	0.03%
5/24/2012	\$31.72	\$31.74	\$0.02	0.06%
5/25/2012	\$31.29	\$31.31	\$0.02	0.06%
5/29/2012	\$31.65	\$31.67	\$0.02	0.06%
5/30/2012	\$30.89	\$30.91	\$0.02	0.06%
5/31/2012	\$30.34	\$30.35	\$0.01	0.03%
6/1/2012	\$29.95	\$29.96	\$0.01	0.03%
6/4/2012	\$29.74	\$29.75	\$0.01	0.03%
6/5/2012	\$30.43	\$30.44	\$0.01	0.03%
6/6/2012	\$31.63	\$31.64	\$0.01	0.03%
6/7/2012	\$31.70	\$31.72	\$0.02	0.06%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
6/8/2012	\$31.96	\$31.97	\$0.01	0.03%	
6/11/2012	\$31.31	\$31.34	\$0.03	0.10%	
6/12/2012	\$31.53	\$31.56	\$0.03	0.10%	
6/13/2012	\$31.05	\$31.07	\$0.02	0.06%	
6/14/2012	\$31.49	\$31.50	\$0.01	0.03%	
6/15/2012	\$31.89	\$31.93	\$0.04	0.13%	
6/18/2012	\$32.37	\$32.38	\$0.01	0.03%	
6/19/2012	\$33.11	\$33.12	\$0.01	0.03%	
6/20/2012	\$33.31	\$33.34	\$0.03	0.09%	
6/21/2012	\$32.55	\$32.57	\$0.02	0.06%	
6/22/2012	\$32.70	\$32.73	\$0.03	0.09%	
6/25/2012	\$32.12	\$32.15	\$0.03	0.09%	
6/26/2012	\$32.28	\$32.30	\$0.02	0.06%	
6/27/2012	\$32.39	\$32.40	\$0.01	0.03%	
6/28/2012	\$32.20	\$32.21	\$0.01	0.03%	
6/29/2012	\$33.55	\$33.58	\$0.03	0.09%	
7/2/2012	\$34.03	\$34.05	\$0.02	0.06%	
7/3/2012	\$34.12	\$34.14	\$0.02	0.06%	
7/5/2012	\$33.92	\$33.93	\$0.01	0.03%	
7/6/2012	\$33.59	\$33.60	\$0.01	0.03%	
7/9/2012	\$34.24	\$34.25	\$0.01	0.03%	
7/10/2012	\$34.10	\$34.12	\$0.02	0.06%	
7/11/2012	\$33.35	\$33.38	\$0.03	0.09%	
7/12/2012	\$33.16	\$33.17	\$0.01	0.03%	
7/13/2012	\$34.17	\$34.20	\$0.03	0.09%	
7/16/2012	\$35.10	\$35.12	\$0.02	0.06%	
7/17/2012	\$36.03	\$36.05	\$0.02	0.06%	
7/18/2012	\$35.73	\$35.74	\$0.01	0.03%	
7/19/2012	\$35.51	\$35.54	\$0.03	0.08%	
7/20/2012	\$34.35	\$34.36	\$0.01	0.03%	
7/23/2012	\$33.93	\$33.96	\$0.03	0.09%	
7/24/2012	\$33.76	\$33.77	\$0.01	0.03%	
7/25/2012	\$34.30	\$34.31	\$0.01	0.03%	
7/26/2012	\$34.38	\$34.39	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
7/27/2012	\$34.54	\$34.57	\$0.03	0.09%	
7/30/2012	\$34.72	\$34.73	\$0.01	0.03%	
7/31/2012	\$34.31	\$34.33	\$0.02	0.06%	
8/1/2012	\$34.00	\$34.07	\$0.07	0.21%	
8/2/2012	\$31.92	\$31.94	\$0.02	0.06%	
8/3/2012	\$32.04	\$32.08	\$0.04	0.12%	
8/6/2012	\$32.24	\$32.25	\$0.01	0.03%	
8/7/2012	\$32.61	\$32.64	\$0.03	0.09%	
8/8/2012	\$32.22	\$32.26	\$0.04	0.12%	
8/9/2012	\$32.11	\$32.13	\$0.02	0.06%	
8/10/2012	\$32.14	\$32.16	\$0.02	0.06%	
8/13/2012	\$31.42	\$31.43	\$0.01	0.03%	
8/14/2012	\$31.19	\$31.20	\$0.01	0.03%	
8/15/2012	\$31.32	\$31.33	\$0.01	0.03%	
8/16/2012	\$31.81	\$31.84	\$0.03	0.09%	
8/17/2012	\$31.61	\$31.63	\$0.02	0.06%	
8/20/2012	\$31.90	\$31.93	\$0.03	0.09%	
8/21/2012	\$31.91	\$31.94	\$0.03	0.09%	
8/22/2012	\$31.82	\$31.83	\$0.01	0.03%	
8/23/2012	\$32.20	\$32.22	\$0.02	0.06%	
8/24/2012	\$32.17	\$32.18	\$0.01	0.03%	
8/27/2012	\$32.35	\$32.37	\$0.02	0.06%	
8/28/2012	\$32.80	\$32.82	\$0.02	0.06%	
8/29/2012	\$33.68	\$33.69	\$0.01	0.03%	
8/30/2012	\$33.56	\$33.58	\$0.02	0.06%	
8/31/2012	\$33.85	\$33.89	\$0.04	0.12%	
9/4/2012	\$34.50	\$34.54	\$0.04	0.12%	
9/5/2012	\$34.92	\$34.93	\$0.01	0.03%	
9/6/2012	\$35.58	\$35.60	\$0.02	0.06%	
9/7/2012	\$34.95	\$34.98	\$0.03	0.09%	
9/10/2012	\$34.53	\$34.54	\$0.01	0.03%	
9/11/2012	\$33.52	\$33.53	\$0.01	0.03%	
9/12/2012	\$33.83	\$33.84	\$0.01	0.03%	
9/13/2012	\$33.94	\$33.95	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
9/14/2012	\$34.27	\$34.29	\$0.02	0.06%
9/17/2012	\$34.66	\$34.67	\$0.01	0.03%
9/18/2012	\$34.91	\$34.93	\$0.02	0.06%
9/19/2012	\$34.91	\$34.93	\$0.02	0.06%
9/20/2012	\$34.79	\$34.81	\$0.02	0.06%
9/21/2012	\$34.69	\$34.70	\$0.01	0.03%
9/24/2012	\$34.65	\$34.67	\$0.02	0.06%
9/25/2012	\$34.79	\$34.81	\$0.02	0.06%
9/26/2012	\$34.19	\$34.20	\$0.01	0.03%
9/27/2012	\$34.64	\$34.65	\$0.01	0.03%
9/28/2012	\$34.60	\$34.62	\$0.02	0.06%
10/1/2012	\$34.44	\$34.46	\$0.02	0.06%
10/2/2012	\$34.28	\$34.29	\$0.01	0.03%
10/3/2012	\$35.82	\$35.83	\$0.01	0.03%
10/4/2012	\$36.52	\$36.56	\$0.04	0.11%
10/5/2012	\$36.42	\$36.43	\$0.01	0.03%
10/8/2012	\$36.05	\$36.06	\$0.01	0.03%
10/9/2012	\$34.84	\$34.86	\$0.02	0.06%
10/10/2012	\$34.25	\$34.26	\$0.01	0.03%
10/11/2012	\$34.38	\$34.40	\$0.02	0.06%
10/12/2012	\$34.22	\$34.23	\$0.01	0.03%
10/15/2012	\$34.49	\$34.50	\$0.01	0.03%
10/16/2012	\$35.53	\$35.54	\$0.01	0.03%
10/17/2012	\$35.20	\$35.21	\$0.01	0.03%
10/18/2012	\$34.43	\$34.44	\$0.01	0.03%
10/19/2012	\$34.79	\$34.80	\$0.01	0.03%
10/22/2012	\$35.39	\$35.41	\$0.02	0.06%
10/23/2012	\$35.28	\$35.29	\$0.01	0.03%
10/24/2012	\$34.75	\$34.77	\$0.02	0.06%
10/25/2012	\$34.85	\$34.86	\$0.01	0.03%
10/26/2012	\$35.04	\$35.05	\$0.01	0.03%
10/31/2012	\$35.69	\$35.70	\$0.01	0.03%
11/1/2012	\$36.04	\$36.05	\$0.01	0.03%
11/2/2012	\$36.61	\$36.64	\$0.03	0.08%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
11/5/2012	\$35.83	\$35.84	\$0.01	0.03%	
11/6/2012	\$35.90	\$35.91	\$0.01	0.03%	
11/7/2012	\$35.15	\$35.16	\$0.01	0.03%	
11/8/2012	\$34.75	\$34.77	\$0.02	0.06%	
11/9/2012	\$34.51	\$34.53	\$0.02	0.06%	
11/12/2012	\$34.77	\$34.79	\$0.02	0.06%	
11/13/2012	\$34.29	\$34.31	\$0.02	0.06%	
11/14/2012	\$34.25	\$34.26	\$0.01	0.03%	
11/15/2012	\$34.50	\$34.52	\$0.02	0.06%	
11/16/2012	\$35.44	\$35.45	\$0.01	0.03%	
11/19/2012	\$35.39	\$35.40	\$0.01	0.03%	
11/20/2012	\$34.99	\$35.00	\$0.01	0.03%	
11/21/2012	\$37.24	\$37.25	\$0.01	0.03%	
11/23/2012	\$38.00	\$38.01	\$0.01	0.03%	
11/26/2012	\$37.77	\$37.78	\$0.01	0.03%	
11/27/2012	\$37.89	\$37.91	\$0.02	0.05%	
11/28/2012	\$37.84	\$37.85	\$0.01	0.03%	
11/29/2012	\$37.28	\$37.31	\$0.03	0.08%	
11/30/2012	\$37.18	\$37.20	\$0.02	0.05%	
12/3/2012	\$36.95	\$36.97	\$0.02	0.05%	
12/4/2012	\$37.33	\$37.35	\$0.02	0.05%	
12/5/2012	\$37.35	\$37.36	\$0.01	0.03%	
12/6/2012	\$37.68	\$37.69	\$0.01	0.03%	
12/7/2012	\$37.80	\$37.81	\$0.01	0.03%	
12/10/2012	\$38.51	\$38.52	\$0.01	0.03%	
12/11/2012	\$39.24	\$39.25	\$0.01	0.03%	
12/12/2012	\$39.29	\$39.30	\$0.01	0.03%	
12/13/2012	\$38.67	\$38.69	\$0.02	0.05%	
12/14/2012	\$37.57	\$37.58	\$0.01	0.03%	
12/17/2012	\$37.95	\$37.96	\$0.01	0.03%	
12/18/2012	\$38.30	\$38.31	\$0.01	0.03%	
12/19/2012	\$37.79	\$37.80	\$0.01	0.03%	
12/20/2012	\$38.01	\$38.02	\$0.01	0.03%	
12/21/2012	\$37.92	\$37.93	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
12/24/2012	\$37.76	\$37.78	\$0.02	0.05%	
12/26/2012	\$37.44	\$37.47	\$0.03	0.08%	
12/27/2012	\$37.41	\$37.42	\$0.01	0.03%	
12/28/2012	\$37.08	\$37.09	\$0.01	0.03%	
12/31/2012	\$37.49	\$37.51	\$0.02	0.05%	
1/2/2013	\$38.10	\$38.13	\$0.03	0.08%	
1/3/2013	\$36.99	\$37.00	\$0.01	0.03%	
1/4/2013	\$36.99	\$37.00	\$0.01	0.03%	
1/7/2013	\$36.83	\$36.84	\$0.01	0.03%	
1/8/2013	\$37.15	\$37.16	\$0.01	0.03%	
1/9/2013	\$37.17	\$37.18	\$0.01	0.03%	
1/10/2013	\$37.22	\$37.23	\$0.01	0.03%	
1/11/2013	\$37.29	\$37.31	\$0.02	0.05%	
1/14/2013	\$36.80	\$36.81	\$0.01	0.03%	
1/15/2013	\$36.57	\$36.58	\$0.01	0.03%	
1/16/2013	\$36.73	\$36.75	\$0.02	0.05%	
1/17/2013	\$36.79	\$36.80	\$0.01	0.03%	
1/18/2013	\$36.48	\$36.50	\$0.02	0.05%	
1/22/2013	\$36.65	\$36.67	\$0.02	0.05%	
1/23/2013	\$36.83	\$36.84	\$0.01	0.03%	
1/24/2013	\$36.74	\$36.75	\$0.01	0.03%	
1/25/2013	\$36.89	\$36.90	\$0.01	0.03%	
1/28/2013	\$37.16	\$37.17	\$0.01	0.03%	
1/29/2013	\$37.18	\$37.20	\$0.02	0.05%	
1/30/2013	\$36.66	\$36.67	\$0.01	0.03%	
1/31/2013	\$36.52	\$36.53	\$0.01	0.03%	
2/1/2013	\$36.94	\$36.95	\$0.01	0.03%	
2/4/2013	\$36.80	\$36.81	\$0.01	0.03%	
2/5/2013	\$36.63	\$36.64	\$0.01	0.03%	
2/6/2013	\$36.68	\$36.69	\$0.01	0.03%	
2/7/2013	\$36.79	\$36.80	\$0.01	0.03%	
2/8/2013	\$36.55	\$36.56	\$0.01	0.03%	
2/11/2013	\$36.36	\$36.37	\$0.01	0.03%	
2/12/2013	\$36.20	\$36.21	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
2/13/2013	\$36.46	\$36.48	\$0.02	0.05%
2/14/2013	\$36.38	\$36.39	\$0.01	0.03%
2/15/2013	\$36.26	\$36.27	\$0.01	0.03%
2/19/2013	\$36.14	\$36.18	\$0.04	0.11%
2/20/2013	\$36.02	\$36.03	\$0.01	0.03%
2/21/2013	\$35.84	\$35.85	\$0.01	0.03%
2/22/2013	\$36.12	\$36.14	\$0.02	0.06%
2/25/2013	\$35.57	\$35.60	\$0.03	0.08%
2/26/2013	\$35.45	\$35.47	\$0.02	0.06%
2/27/2013	\$35.80	\$35.81	\$0.01	0.03%
2/28/2013	\$35.20	\$35.21	\$0.01	0.03%
3/1/2013	\$35.26	\$35.29	\$0.03	0.09%
3/4/2013	\$35.27	\$35.28	\$0.01	0.03%
3/5/2013	\$35.49	\$35.50	\$0.01	0.03%
3/6/2013	\$35.69	\$35.70	\$0.01	0.03%
3/7/2013	\$35.67	\$35.69	\$0.02	0.06%
3/8/2013	\$35.87	\$35.89	\$0.02	0.06%
3/11/2013	\$35.79	\$35.80	\$0.01	0.03%
3/12/2013	\$35.61	\$35.62	\$0.01	0.03%
3/13/2013	\$35.72	\$35.74	\$0.02	0.06%
3/14/2013	\$35.78	\$35.79	\$0.01	0.03%
3/15/2013	\$35.71	\$35.72	\$0.01	0.03%
3/18/2013	\$35.79	\$35.80	\$0.01	0.03%
3/19/2013	\$35.84	\$35.85	\$0.01	0.03%
3/20/2013	\$35.99	\$36.00	\$0.01	0.03%
3/21/2013	\$35.89	\$35.90	\$0.01	0.03%
3/22/2013	\$36.49	\$36.50	\$0.01	0.03%
3/25/2013	\$36.07	\$36.08	\$0.01	0.03%
3/26/2013	\$35.63	\$35.64	\$0.01	0.03%
3/27/2013	\$35.87	\$35.88	\$0.01	0.03%
3/28/2013	\$37.48	\$37.50	\$0.02	0.05%
4/1/2013	\$37.04	\$37.05	\$0.01	0.03%
4/2/2013	\$37.43	\$37.44	\$0.01	0.03%
4/3/2013	\$36.84	\$36.85	\$0.01	0.03%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's S	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
4/4/2013	\$36.84	\$36.85	\$0.01	0.03%
4/5/2013	\$36.51	\$36.53	\$0.02	0.05%
4/8/2013	\$36.42	\$36.43	\$0.01	0.03%
4/9/2013	\$36.45	\$36.46	\$0.01	0.03%
4/10/2013	\$36.49	\$36.50	\$0.01	0.03%
4/11/2013	\$36.52	\$36.54	\$0.02	0.05%
4/12/2013	\$36.26	\$36.28	\$0.02	0.06%
4/15/2013	\$36.30	\$36.31	\$0.01	0.03%
4/16/2013	\$36.53	\$36.55	\$0.02	0.05%
4/17/2013	\$36.09	\$36.11	\$0.02	0.06%
4/18/2013	\$35.62	\$35.63	\$0.01	0.03%
4/19/2013	\$35.94	\$35.95	\$0.01	0.03%
4/22/2013	\$35.57	\$35.58	\$0.01	0.03%
4/23/2013	\$36.27	\$36.28	\$0.01	0.03%
4/24/2013	\$36.11	\$36.12	\$0.01	0.03%
4/25/2013	\$36.86	\$36.87	\$0.01	0.03%
4/26/2013	\$37.39	\$37.41	\$0.02	0.05%
4/29/2013	\$37.63	\$37.65	\$0.02	0.05%
4/30/2013	\$36.18	\$36.19	\$0.01	0.03%
5/1/2013	\$35.76	\$35.78	\$0.02	0.06%
5/2/2013	\$36.52	\$36.53	\$0.01	0.03%
5/3/2013	\$32.58	\$32.59	\$0.01	0.03%
5/6/2013	\$32.75	\$32.76	\$0.01	0.03%
5/7/2013	\$33.02	\$33.03	\$0.01	0.03%
5/8/2013	\$33.69	\$33.70	\$0.01	0.03%
5/9/2013	\$33.85	\$33.86	\$0.01	0.03%
5/10/2013	\$34.60	\$34.61	\$0.01	0.03%
5/13/2013	\$33.74	\$33.75	\$0.01	0.03%
5/14/2013	\$33.70	\$33.73	\$0.03	0.09%
5/15/2013	\$33.62	\$33.63	\$0.01	0.03%
5/16/2013	\$33.21	\$33.22	\$0.01	0.03%
5/17/2013	\$32.57	\$32.60	\$0.03	0.09%
5/20/2013	\$31.47	\$31.49	\$0.02	0.06%
5/21/2013	\$31.51	\$31.52	\$0.01	0.03%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
5/22/2013	\$30.95	\$30.97	\$0.02	0.06%
5/23/2013	\$31.51	\$31.52	\$0.01	0.03%
5/24/2013	\$31.38	\$31.39	\$0.01	0.03%
5/28/2013	\$31.54	\$31.56	\$0.02	0.06%
5/29/2013	\$31.10	\$31.11	\$0.01	0.03%
5/30/2013	\$31.24	\$31.25	\$0.01	0.03%
5/31/2013	\$31.15	\$31.17	\$0.02	0.06%
6/3/2013	\$30.65	\$30.66	\$0.01	0.03%
6/4/2013	\$30.09	\$30.10	\$0.01	0.03%
6/5/2013	\$30.16	\$30.18	\$0.02	0.07%
6/6/2013	\$30.67	\$30.69	\$0.02	0.07%
6/7/2013	\$30.96	\$30.97	\$0.01	0.03%
6/10/2013	\$31.29	\$31.30	\$0.01	0.03%
6/11/2013	\$30.80	\$30.81	\$0.01	0.03%
6/12/2013	\$31.30	\$31.31	\$0.01	0.03%
6/13/2013	\$32.51	\$32.53	\$0.02	0.06%
6/14/2013	\$31.93	\$31.95	\$0.02	0.06%
6/17/2013	\$32.05	\$32.06	\$0.01	0.03%
6/18/2013	\$31.67	\$31.68	\$0.01	0.03%
6/19/2013	\$31.56	\$31.58	\$0.02	0.06%
6/20/2013	\$31.27	\$31.29	\$0.02	0.06%
6/21/2013	\$31.53	\$31.54	\$0.01	0.03%
6/24/2013	\$31.18	\$31.19	\$0.01	0.03%
6/25/2013	\$30.84	\$30.85	\$0.01	0.03%
6/26/2013	\$30.88	\$30.89	\$0.01	0.03%
6/27/2013	\$30.94	\$30.95	\$0.01	0.03%
6/28/2013	\$31.31	\$31.32	\$0.01	0.03%
7/1/2013	\$31.81	\$31.82	\$0.01	0.03%
7/2/2013	\$32.10	\$32.11	\$0.01	0.03%
7/3/2013	\$31.99	\$32.08	\$0.09	0.28%
7/5/2013	\$32.41	\$32.42	\$0.01	0.03%
7/8/2013	\$32.35	\$32.36	\$0.01	0.03%
7/9/2013	\$31.30	\$31.31	\$0.01	0.03%
7/10/2013	\$30.69	\$30.70	\$0.01	0.03%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
7/11/2013	\$31.34	\$31.35	\$0.01	0.03%
7/12/2013	\$31.41	\$31.42	\$0.01	0.03%
7/15/2013	\$31.40	\$31.42	\$0.02	0.06%
7/16/2013	\$31.74	\$31.76	\$0.02	0.06%
7/17/2013	\$32.31	\$32.33	\$0.02	0.06%
7/18/2013	\$32.38	\$32.40	\$0.02	0.06%
7/19/2013	\$32.25	\$32.27	\$0.02	0.06%
7/22/2013	\$32.91	\$32.92	\$0.01	0.03%
7/23/2013	\$32.78	\$32.80	\$0.02	0.06%
7/24/2013	\$32.35	\$32.36	\$0.01	0.03%
7/25/2013	\$32.25	\$32.26	\$0.01	0.03%
7/26/2013	\$32.27	\$32.28	\$0.01	0.03%
7/29/2013	\$32.48	\$32.49	\$0.01	0.03%
7/30/2013	\$32.54	\$32.56	\$0.02	0.06%
7/31/2013	\$32.78	\$32.79	\$0.01	0.03%
8/1/2013	\$35.86	\$35.87	\$0.01	0.03%
8/2/2013	\$36.19	\$36.20	\$0.01	0.03%
8/5/2013	\$36.23	\$36.24	\$0.01	0.03%
8/6/2013	\$35.59	\$35.62	\$0.03	0.08%
8/7/2013	\$35.80	\$35.81	\$0.01	0.03%
8/8/2013	\$37.19	\$37.21	\$0.02	0.05%
8/9/2013	\$37.37	\$37.38	\$0.01	0.03%
8/12/2013	\$37.13	\$37.14	\$0.01	0.03%
8/13/2013	\$36.65	\$36.66	\$0.01	0.03%
8/14/2013	\$36.17	\$36.18	\$0.01	0.03%
8/15/2013	\$35.92	\$35.94	\$0.02	0.06%
8/16/2013	\$35.58	\$35.59	\$0.01	0.03%
8/19/2013	\$35.81	\$35.82	\$0.01	0.03%
8/20/2013	\$36.09	\$36.10	\$0.01	0.03%
8/21/2013	\$35.69	\$35.70	\$0.01	0.03%
8/22/2013	\$35.99	\$36.00	\$0.01	0.03%
8/23/2013	\$36.14	\$36.16	\$0.02	0.06%
8/26/2013	\$36.47	\$36.48	\$0.01	0.03%
8/27/2013	\$35.67	\$35.68	\$0.01	0.03%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
8/28/2013	\$35.77	\$35.79	\$0.02	0.06%	
8/29/2013	\$36.20	\$36.21	\$0.01	0.03%	
8/30/2013	\$35.73	\$35.75	\$0.02	0.06%	
9/3/2013	\$35.33	\$35.34	\$0.01	0.03%	
9/4/2013	\$35.86	\$35.87	\$0.01	0.03%	
9/5/2013	\$35.97	\$35.99	\$0.02	0.06%	
9/6/2013	\$36.01	\$36.03	\$0.02	0.06%	
9/9/2013	\$36.38	\$36.39	\$0.01	0.03%	
9/10/2013	\$36.58	\$36.59	\$0.01	0.03%	
9/11/2013	\$36.59	\$36.61	\$0.02	0.05%	
9/12/2013	\$36.20	\$36.21	\$0.01	0.03%	
9/13/2013	\$36.69	\$36.70	\$0.01	0.03%	
9/16/2013	\$37.16	\$37.17	\$0.01	0.03%	
9/17/2013	\$37.54	\$37.56	\$0.02	0.05%	
9/18/2013	\$37.63	\$37.64	\$0.01	0.03%	
9/19/2013	\$37.40	\$37.41	\$0.01	0.03%	
9/20/2013	\$37.30	\$37.31	\$0.01	0.03%	
9/23/2013	\$36.94	\$36.95	\$0.01	0.03%	
9/24/2013	\$36.79	\$36.80	\$0.01	0.03%	
9/25/2013	\$37.20	\$37.21	\$0.01	0.03%	
9/26/2013	\$37.05	\$37.06	\$0.01	0.03%	
9/27/2013	\$36.91	\$36.93	\$0.02	0.05%	
9/30/2013	\$37.28	\$37.29	\$0.01	0.03%	
10/1/2013	\$38.27	\$38.33	\$0.06	0.16%	
10/2/2013	\$38.14	\$38.15	\$0.01	0.03%	
10/3/2013	\$37.77	\$37.78	\$0.01	0.03%	
10/4/2013	\$38.40	\$38.41	\$0.01	0.03%	
10/7/2013	\$37.96	\$37.97	\$0.01	0.03%	
10/8/2013	\$37.37	\$37.39	\$0.02	0.05%	
10/9/2013	\$37.59	\$37.60	\$0.01	0.03%	
10/10/2013	\$38.36	\$38.37	\$0.01	0.03%	
10/11/2013	\$38.30	\$38.33	\$0.03	0.08%	
10/14/2013	\$38.66	\$38.67	\$0.01	0.03%	
10/15/2013	\$38.55	\$38.57	\$0.02	0.05%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
10/16/2013	\$38.95	\$38.96	\$0.01	0.03%
10/17/2013	\$38.99	\$39.00	\$0.01	0.03%
10/18/2013	\$39.23	\$39.24	\$0.01	0.03%
10/21/2013	\$39.05	\$39.06	\$0.01	0.03%
10/22/2013	\$39.04	\$39.06	\$0.02	0.05%
10/23/2013	\$39.24	\$39.25	\$0.01	0.03%
10/24/2013	\$39.60	\$39.61	\$0.01	0.03%
10/25/2013	\$39.99	\$40.00	\$0.01	0.03%
10/28/2013	\$40.12	\$40.13	\$0.01	0.02%
10/29/2013	\$39.98	\$39.99	\$0.01	0.03%
10/30/2013	\$39.31	\$39.33	\$0.02	0.05%
10/31/2013	\$43.19	\$43.21	\$0.02	0.05%
11/1/2013	\$41.90	\$41.91	\$0.01	0.02%
11/4/2013	\$42.51	\$42.52	\$0.01	0.02%
11/5/2013	\$41.54	\$41.55	\$0.01	0.02%
11/6/2013	\$41.61	\$41.62	\$0.01	0.02%
11/7/2013	\$40.79	\$40.80	\$0.01	0.02%
11/8/2013	\$40.94	\$40.95	\$0.01	0.02%
11/11/2013	\$41.54	\$41.55	\$0.01	0.02%
11/12/2013	\$42.40	\$42.41	\$0.01	0.02%
11/13/2013	\$42.89	\$42.90	\$0.01	0.02%
11/14/2013	\$43.02	\$43.03	\$0.01	0.02%
11/15/2013	\$43.29	\$43.30	\$0.01	0.02%
11/18/2013	\$42.69	\$42.70	\$0.01	0.02%
11/19/2013	\$41.99	\$42.01	\$0.02	0.05%
11/20/2013	\$41.29	\$41.31	\$0.02	0.05%
11/21/2013	\$41.80	\$41.81	\$0.01	0.02%
11/22/2013	\$41.74	\$41.76	\$0.02	0.05%
11/25/2013	\$41.59	\$41.61	\$0.02	0.05%
11/26/2013	\$41.51	\$41.52	\$0.01	0.02%
11/27/2013	\$42.10	\$42.12	\$0.02	0.05%
11/29/2013	\$39.36	\$39.37	\$0.01	0.03%
12/2/2013	\$38.86	\$38.88	\$0.02	0.05%
12/3/2013	\$39.78	\$39.80	\$0.02	0.05%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
12/4/2013	\$38.94	\$38.95	\$0.01	0.03%	
12/5/2013	\$38.91	\$38.92	\$0.01	0.03%	
12/6/2013	\$38.56	\$38.58	\$0.02	0.05%	
12/9/2013	\$38.42	\$38.43	\$0.01	0.03%	
12/10/2013	\$37.99	\$38.00	\$0.01	0.03%	
12/11/2013	\$36.79	\$36.80	\$0.01	0.03%	
12/12/2013	\$36.02	\$36.03	\$0.01	0.03%	
12/13/2013	\$36.01	\$36.02	\$0.01	0.03%	
12/16/2013	\$35.98	\$36.00	\$0.02	0.06%	
12/17/2013	\$35.95	\$35.96	\$0.01	0.03%	
12/18/2013	\$36.45	\$36.47	\$0.02	0.05%	
12/19/2013	\$36.63	\$36.64	\$0.01	0.03%	
12/20/2013	\$35.94	\$35.95	\$0.01	0.03%	
12/23/2013	\$36.07	\$36.08	\$0.01	0.03%	
12/24/2013	\$36.07	\$36.12	\$0.05	0.14%	
12/26/2013	\$35.85	\$35.86	\$0.01	0.03%	
12/27/2013	\$36.13	\$36.15	\$0.02	0.06%	
12/30/2013	\$36.47	\$36.48	\$0.01	0.03%	
12/31/2013	\$36.60	\$36.61	\$0.01	0.03%	
1/2/2014	\$36.25	\$36.26	\$0.01	0.03%	
1/3/2014	\$36.28	\$36.29	\$0.01	0.03%	
1/6/2014	\$35.92	\$35.93	\$0.01	0.03%	
1/7/2014	\$35.78	\$35.79	\$0.01	0.03%	
1/8/2014	\$35.74	\$35.75	\$0.01	0.03%	
1/9/2014	\$36.34	\$36.35	\$0.01	0.03%	
1/10/2014	\$37.34	\$37.36	\$0.02	0.05%	
1/13/2014	\$37.04	\$37.05	\$0.01	0.03%	
1/14/2014	\$37.83	\$37.84	\$0.01	0.03%	
1/15/2014	\$38.66	\$38.67	\$0.01	0.03%	
1/16/2014	\$37.95	\$37.97	\$0.02	0.05%	
1/17/2014	\$37.29	\$37.31	\$0.02	0.05%	
1/21/2014	\$37.10	\$37.11	\$0.01	0.03%	
1/22/2014	\$36.76	\$36.77	\$0.01	0.03%	
1/23/2014	\$35.91	\$35.93	\$0.02	0.06%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

	Thoratec's Stock				
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)	
1/24/2014	\$34.92	\$34.94	\$0.02	0.06%	
1/27/2014	\$34.36	\$34.37	\$0.01	0.03%	
1/28/2014	\$34.84	\$34.85	\$0.01	0.03%	
1/29/2014	\$34.53	\$34.54	\$0.01	0.03%	
1/30/2014	\$34.95	\$34.96	\$0.01	0.03%	
1/31/2014	\$34.94	\$34.95	\$0.01	0.03%	
2/3/2014	\$33.79	\$33.80	\$0.01	0.03%	
2/4/2014	\$34.37	\$34.38	\$0.01	0.03%	
2/5/2014	\$34.93	\$34.94	\$0.01	0.03%	
2/6/2014	\$34.45	\$34.47	\$0.02	0.06%	
2/7/2014	\$34.66	\$34.68	\$0.02	0.06%	
2/10/2014	\$34.45	\$34.48	\$0.03	0.09%	
2/11/2014	\$35.17	\$35.19	\$0.02	0.06%	
2/12/2014	\$35.90	\$35.92	\$0.02	0.06%	
2/13/2014	\$36.02	\$36.03	\$0.01	0.03%	
2/14/2014	\$36.02	\$36.03	\$0.01	0.03%	
2/18/2014	\$36.22	\$36.23	\$0.01	0.03%	
2/19/2014	\$35.71	\$35.72	\$0.01	0.03%	
2/20/2014	\$36.45	\$36.47	\$0.02	0.05%	
2/21/2014	\$35.72	\$35.73	\$0.01	0.03%	
2/24/2014	\$35.97	\$35.99	\$0.02	0.06%	
2/25/2014	\$35.49	\$35.50	\$0.01	0.03%	
2/26/2014	\$35.59	\$35.60	\$0.01	0.03%	
2/27/2014	\$37.24	\$37.26	\$0.02	0.05%	
2/28/2014	\$37.14	\$37.16	\$0.02	0.05%	
3/3/2014	\$36.24	\$36.26	\$0.02	0.06%	
3/4/2014	\$37.21	\$37.22	\$0.01	0.03%	
3/5/2014	\$36.22	\$36.23	\$0.01	0.03%	
3/6/2014	\$36.34	\$36.36	\$0.02	0.06%	
3/7/2014	\$36.83	\$36.84	\$0.01	0.03%	
3/10/2014	\$36.78	\$36.79	\$0.01	0.03%	
3/11/2014	\$35.82	\$35.84	\$0.02	0.06%	
3/12/2014	\$35.02	\$35.04	\$0.02	0.06%	
3/13/2014	\$34.40	\$34.41	\$0.01	0.03%	

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)
Average	\$0.02	\$0.04	0.05%	0.21%
Median	\$0.01	\$0.03	0.03%	0.17%

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
3/14/2014	\$34.19	\$34.21	\$0.02	0.06%
3/17/2014	\$35.00	\$35.01	\$0.01	0.03%
3/18/2014	\$36.71	\$36.72	\$0.01	0.03%
3/19/2014	\$36.47	\$36.49	\$0.02	0.05%
3/20/2014	\$36.33	\$36.35	\$0.02	0.06%
3/21/2014	\$36.00	\$36.02	\$0.02	0.06%
3/24/2014	\$35.32	\$35.33	\$0.01	0.03%
3/25/2014	\$35.02	\$35.03	\$0.01	0.03%
3/26/2014	\$34.77	\$34.78	\$0.01	0.03%
3/27/2014	\$34.65	\$34.67	\$0.02	0.06%
3/28/2014	\$35.15	\$35.16	\$0.01	0.03%
3/31/2014	\$35.80	\$35.81	\$0.01	0.03%
4/1/2014	\$35.84	\$35.86	\$0.02	0.06%
4/2/2014	\$35.80	\$35.82	\$0.02	0.06%
4/3/2014	\$36.14	\$36.15	\$0.01	0.03%
4/4/2014	\$35.10	\$35.11	\$0.01	0.03%
4/7/2014	\$34.26	\$34.27	\$0.01	0.03%
4/8/2014	\$33.76	\$33.79	\$0.03	0.09%
4/9/2014	\$34.17	\$34.18	\$0.01	0.03%
4/10/2014	\$33.42	\$33.43	\$0.01	0.03%
4/11/2014	\$32.93	\$32.94	\$0.01	0.03%
4/14/2014	\$32.78	\$32.79	\$0.01	0.03%
4/15/2014	\$33.67	\$33.68	\$0.01	0.03%
4/16/2014	\$33.92	\$33.94	\$0.02	0.06%
4/17/2014	\$33.59	\$33.60	\$0.01	0.03%
4/21/2014	\$33.91	\$33.92	\$0.01	0.03%
4/22/2014	\$33.81	\$33.82	\$0.01	0.03%
4/23/2014	\$33.52	\$33.53	\$0.01	0.03%
4/24/2014	\$33.35	\$33.36	\$0.01	0.03%
4/25/2014	\$32.22	\$32.23	\$0.01	0.03%
4/28/2014	\$32.36	\$32.37	\$0.01	0.03%
4/29/2014	\$32.70	\$32.71	\$0.01	0.03%
4/30/2014	\$32.78	\$32.79	\$0.01	0.03%
5/1/2014	\$33.47	\$33.48	\$0.01	0.03%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

Source: Bloomberg

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample	
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)	
Average	\$0.02	\$0.04	0.05%	0.21%	
Median	\$0.01	\$0.03	0.03%	0.17%	

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
5/2/2014	\$33.62	\$33.64	\$0.02	0.06%
5/5/2014	\$33.17	\$33.18	\$0.01	0.03%
5/6/2014	\$32.85	\$32.86	\$0.01	0.03%
5/7/2014	\$31.03	\$31.04	\$0.01	0.03%
5/8/2014	\$30.89	\$30.91	\$0.02	0.06%
5/9/2014	\$31.65	\$31.66	\$0.01	0.03%
5/12/2014	\$32.36	\$32.37	\$0.01	0.03%
5/13/2014	\$32.17	\$32.18	\$0.01	0.03%
5/14/2014	\$31.57	\$31.58	\$0.01	0.03%
5/15/2014	\$31.17	\$31.19	\$0.02	0.06%
5/16/2014	\$31.26	\$31.27	\$0.01	0.03%
5/19/2014	\$31.49	\$31.50	\$0.01	0.03%
5/20/2014	\$31.45	\$31.46	\$0.01	0.03%
5/21/2014	\$31.79	\$31.80	\$0.01	0.03%
5/22/2014	\$32.01	\$32.02	\$0.01	0.03%
5/23/2014	\$32.25	\$32.26	\$0.01	0.03%
5/27/2014	\$32.56	\$32.58	\$0.02	0.06%
5/28/2014	\$32.66	\$32.67	\$0.01	0.03%
5/29/2014	\$33.13	\$33.17	\$0.04	0.12%
5/30/2014	\$33.12	\$33.13	\$0.01	0.03%
6/2/2014	\$33.02	\$33.04	\$0.02	0.06%
6/3/2014	\$33.07	\$33.09	\$0.02	0.06%
6/4/2014	\$33.55	\$33.56	\$0.01	0.03%
6/5/2014	\$34.37	\$34.38	\$0.01	0.03%
6/6/2014	\$34.06	\$34.07	\$0.01	0.03%
6/9/2014	\$34.05	\$34.07	\$0.02	0.06%
6/10/2014	\$33.89	\$33.90	\$0.01	0.03%
6/11/2014	\$33.60	\$33.62	\$0.02	0.06%
6/12/2014	\$33.49	\$33.50	\$0.01	0.03%
6/13/2014	\$33.45	\$33.46	\$0.01	0.03%
6/16/2014	\$33.35	\$33.36	\$0.01	0.03%
6/17/2014	\$33.64	\$33.65	\$0.01	0.03%
6/18/2014	\$34.06	\$34.07	\$0.01	0.03%
6/19/2014	\$34.48	\$34.49	\$0.01	0.03%

Thoratec Corp.

Bid Ask Spreads on the NASDAQ Global Select

Source: Bloomberg

	Thoratec	NASDAQ Sample	Thoratec	NASDAQ Sample	
	Spread (\$)	Spread (\$)	Spread (%)	Spread (%)	
Average	\$0.02	\$0.04	0.05%	0.21%	
Median	\$0.01	\$0.03	0.03%	0.17%	

		Thoratec's St	tock	
Date	Last Bid	Last Ask	Spread (\$)	Spread (%)
6/20/2014	\$34.54	\$34.55	\$0.01	0.03%
6/23/2014	\$33.99	\$34.00	\$0.01	0.03%
6/24/2014	\$34.19	\$34.20	\$0.01	0.03%
6/25/2014	\$34.69	\$34.70	\$0.01	0.03%
6/26/2014	\$34.45	\$34.46	\$0.01	0.03%
6/27/2014	\$34.92	\$34.93	\$0.01	0.03%
6/30/2014	\$34.85	\$34.86	\$0.01	0.03%
7/1/2014	\$35.53	\$35.54	\$0.01	0.03%
7/2/2014	\$34.54	\$34.55	\$0.01	0.03%
7/3/2014	\$35.00	\$35.02	\$0.02	0.06%
7/7/2014	\$34.21	\$34.24	\$0.03	0.09%
7/8/2014	\$33.95	\$33.96	\$0.01	0.03%
7/9/2014	\$33.89	\$33.90	\$0.01	0.03%
7/10/2014	\$33.49	\$33.51	\$0.02	0.06%
7/11/2014	\$33.74	\$33.75	\$0.01	0.03%
7/14/2014	\$33.88	\$33.90	\$0.02	0.06%
7/15/2014	\$33.28	\$33.30	\$0.02	0.06%
7/16/2014	\$32.86	\$32.87	\$0.01	0.03%
7/17/2014	\$32.56	\$32.57	\$0.01	0.03%
7/18/2014	\$33.00	\$33.01	\$0.01	0.03%
7/21/2014	\$32.67	\$32.68	\$0.01	0.03%
7/22/2014	\$32.96	\$32.97	\$0.01	0.03%
7/23/2014	\$32.68	\$32.69	\$0.01	0.03%
7/24/2014	\$32.54	\$32.55	\$0.01	0.03%
7/25/2014	\$32.13	\$32.14	\$0.01	0.03%
7/28/2014	\$32.28	\$32.29	\$0.01	0.03%
7/29/2014	\$31.30	\$31.31	\$0.01	0.03%
7/30/2014	\$31.39	\$31.40	\$0.01	0.03%
7/31/2014	\$32.50	\$32.51	\$0.01	0.03%
8/1/2014	\$32.25	\$32.26	\$0.01	0.03%
8/4/2014	\$32.83	\$32.84	\$0.01	0.03%
8/5/2014	\$33.05	\$33.06	\$0.01	0.03%
8/6/2014	\$32.56	\$32.57	\$0.01	0.03%

Thoratec Corp.

Companies Used for Bid Ask Spread Analysis on the NASDAQ Global Select

Bloomberg Symbol	Company
ICUI US Equity	ICU MEDICAL
ISCA US Equity	INTL SPEEDWAY-A
MGPI US Equity	MGP INGREDIENTS
MGRC US Equity	MCGRATH RENTCORP
FFIC US Equity	FLUSHING FINL
KVHI US Equity	KVH INDUSTRIES
XBKS US Equity	XENITH BANKSHARE
BREW US Equity	CRAFT BREW ALLIA
BELFB US Equity	BEL FUSE INC-B
WEB US Equity	WEB.COM GROUP
AVHI US Equity	AV HOMES INC
ESND US Equity	ESSENDANT INC
SRPT US Equity	SAREPTA THERAPEU
FFIV US Equity	F5 NETWORKS
RAVN US Equity	RAVEN INDUSTRIES
PDCO US Equity	PATTERSON COS
ANIK US Equity	ANIKA THERAPEUTI
LAWS US Equity	LAWSON PRODUCTS
TECH US Equity	BIO-TECHNE CORP
WASH US Equity	WASH TRUST BANC
MHLD US Equity	MAIDEN HOLDINGS
DXPE US Equity	DXP ENTERPRISES
OCFC US Equity	OCEANFIRST FINL
VSAT US Equity	VIASAT INC
JACK US Equity	JACK IN THE BOX
AVGO US Equity	BROADCOM LTD
ALXN US Equity	ALEXION PHARM
PLCE US Equity	CHILDREN'S PLACE
PRGX US Equity	PRGX GLOBAL INC
CSX US Equity	CSX CORP
QNST US Equity	QUINSTREET INC
QADA US Equity	QAD INC-A
BABY US Equity	NATUS MEDICAL
ABCB US Equity	AMERIS BANCORP
CLDX US Equity	CELLDEX THERAPEU
JAZZ US Equity	JAZZ PHARMACEUTI
RP US Equity	REALPAGE INC
CSII US Equity	CARDIOVASCULAR S
CME US Equity	CME GROUP INC
JCOM US Equity	J2 GLOBAL INC
GSIT US Equity	GSI TECHNOLOGY
BIIB US Equity	BIOGEN INC

Thoratec Corp.

Companies Used for Bid Ask Spread Analysis on the NASDAQ Global Select

Bloomberg Symbol	Company
HFWA US Equity	HERITAGE FINL
LULU US Equity	LULULEMON ATH
WWD US Equity	WOODWARD INC
MRCY US Equity	MERCURY SYSTEMS
FORR US Equity	FORRESTER RESEAR
QDEL US Equity	QUIDEL CORP
ESSA US Equity	ESSA BANCORP INC
GASS US Equity	STEALTHGAS INC
CCNE US Equity	CNB FINL CORP/PA
ITRI US Equity	ITRON INC
WBA US Equity	WALGREENS BOOTS
CECE US Equity	CECO ENVIRONMNTL
HCSG US Equity	HEALTHCARE SERVS
SSNC US Equity	SS&C TECHNOLOGIE
PERI US Equity	PERION NETWORK L
CWCO US Equity	CONS WATER CO-OR
URBN US Equity	URBAN OUTFITTER
UFPI US Equity	UNIVERSAL FOREST
RBCAA US Equity	REPUBLIC BNCRP-A
PNFP US Equity	PINNACLE FINL
EXTR US Equity	EXTREME NETWORKS
AMKR US Equity	AMKOR TECH INC
ORIT US Equity	ORITANI FINANCIA
TWIN US Equity	TWIN DISC INC
VIVO US Equity	MERIDIAN BIOSCI
WEYS US Equity	WEYCO GROUP
SAIA US Equity	SAIA INC
SBNY US Equity	SIGNATURE BANK
AGII US Equity	ARGO GROUP INTER
RUSHA US Equity	RUSH ENTER-CL A
GBDC US Equity	GOLUB CAPITAL BD
EA US Equity	ELECTRONIC ARTS
CALM US Equity	CAL-MAINE FOODS
TVTY US Equity	TIVITY HEALTH IN
SGMO US Equity	SANGAMO THERAPEU
NANO US Equity	NANOMETRICS INC
CSBK US Equity	CLIFTON BANCORP
SVA US Equity	SINOVAC BIOTECH
GOOGL US Equity	ALPHABET INC-A
SYNA US Equity	SYNAPTICS INC
CVGW US Equity	CALAVO GROWERS I
PRFT US Equity	PERFICIENT INC

Thoratec Corp.

Companies Used for Bid Ask Spread Analysis on the NASDAQ Global Select

Bloomberg Symbol	Company
MGIC US Equity	MAGIC SOFTWARE
DGICA US Equity	DONEGAL GRP-CL A
LAYN US Equity	LAYNE CHRISTENSN
MDRX US Equity	ALLSCRIPTS HEALT
ENDP US Equity	ENDO INTERNATION
MTSC US Equity	MTS SYSTEMS CORP
UBSI US Equity	UNITED BANKSHS
LANC US Equity	LANCASTER COLONY
SONC US Equity	SONIC CORP
IMKTA US Equity	INGLES MARKETS-A
JJSF US Equity	J & J SNACK FOOD
AAWW US Equity	ATLAS AIR WORLDW
VIAB US Equity	VIACOM INC-B
PCTI US Equity	PC-TEL INC
ICON US Equity	ICONIX BRAND GRO
AVID US Equity	AVID TECHNOLOGY

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
5/11/2011	33.21	-2.92%	-1.06%	-0.10%	-1.09%	-1.84%	2.69%	(0.68)	50.56%	
5/12/2011	33.41	0.60%	0.50%	-0.10%	0.32%	0.28%	2.69%	0.11	8.39%	
5/13/2011	33.75	1.02%	-0.80%	0.04%	-0.83%	1.85%	2.68%	0.69	50.78%	
5/16/2011	33.60	-0.44%	-0.61%	0.68%	-0.44%	0.00%	2.69%	(0.00)	0.14%	
5/17/2011	33.09	-1.52%	-0.01%	0.47%	0.03%	-1.55%	2.68%	(0.58)	43.56%	
5/18/2011	34.64	4.68%	0.90%	0.44%	0.80%	3.88%	2.67%	1.45	85.25%	
5/19/2011	35.70	3.06%	0.23%	-0.59%	-0.09%	3.15%	2.68%	1.18	75.92%	
5/20/2011	35.23	-1.32%	-0.77%	-0.73%	-1.01%	-0.31%	2.69%	(0.11)	9.09%	
5/23/2011	34.65	-1.65%	-1.19%	-1.15%	-1.53%	-0.11%	2.69%	(0.04)	3.38%	
5/24/2011	34.08	-1.65%	-0.08%	-0.19%	-0.24%	-1.41%	2.69%	(0.52)	39.91%	
5/25/2011	34.37	0.85%	0.33%	-0.45%	0.05%	0.80%	2.67%	0.30	23.52%	
5/26/2011	34.70	0.96%	0.42%	0.14%	0.30%	0.66%	2.67%	0.25	19.41%	
5/27/2011	34.80	0.29%	0.43%	-0.14%	0.24%	0.05%	2.67%	0.02	1.47%	
5/31/2011	34.77	-0.09%	1.06%	0.02%	0.82%	-0.91%	2.67%	(0.34)	26.65%	
6/1/2011	33.76	-2.90%	-2.27%	0.19%	-2.11%	-0.79%	2.67%	(0.30)	23.35%	
6/2/2011	33.52	-0.71%	-0.12%	-1.32%	-0.62%	-0.09%	2.67%	(0.03)	2.77%	
6/3/2011	32.99	-1.58%	-0.97%	0.19%	-0.92%	-0.66%	2.66%	(0.25)	19.51%	
6/6/2011	32.25	-2.24%	-1.07%	0.12%	-1.03%	-1.21%	2.65%	(0.46)	35.09%	
6/7/2011	32.21	-0.12%	-0.09%	0.45%	-0.10%	-0.03%	2.65%	(0.01)	0.81%	
6/8/2011	31.90	-0.96%	-0.40%	0.09%	-0.47%	-0.49%	2.65%	(0.18)	14.64%	
6/9/2011	32.14	0.75%	0.74%	0.26%	0.58%	0.17%	2.65%	0.07	5.25%	
6/10/2011	31.01	-3.52%	-1.40%	-0.79%	-1.61%	-1.90%	2.65%	(0.72)	52.76%	
6/13/2011	30.59	-1.35%	0.10%	-0.12%	-0.12%	-1.24%	2.65%	(0.47)	35.92%	
6/14/2011	30.76	0.56%	1.27%	-0.17%	0.90%	-0.35%	2.65%	(0.13)	10.44%	
6/15/2011	29.85	-2.96%	-1.74%	0.28%	-1.63%	-1.33%	2.65%	(0.50)	38.48%	
6/16/2011	29.98	0.44%	0.19%	0.34%	0.10%	0.34%	2.65%	0.13	10.08%	
6/17/2011	29.98	0.00%	0.31%	-0.51%	-0.06%	0.06%	2.63%	0.02	1.81%	
6/20/2011	30.96	3.27%	0.54%	0.51%	0.44%	2.83%	2.63%	1.08	71.76%	
6/21/2011	31.26	0.97%	1.35%	-0.57%	0.89%	0.08%	2.63%	0.03	2.32%	
6/22/2011	31.02	-0.77%	-0.64%	0.21%	-0.71%	-0.06%	2.63%	(0.02)	1.85%	
6/23/2011	30.47	-1.77%	-0.28%	-0.36%	-0.52%	-1.25%	2.62%	(0.48)	36.70%	
6/24/2011	30.81	1.12%	-1.17%	0.22%	-1.16%	2.27%	2.62%	0.87	61.26%	
6/27/2011	30.93	0.39%	0.92%	-0.42%	0.51%	-0.12%	2.63%	(0.05)	3.76%	
6/28/2011	31.75	2.65%	1.32%	0.01%	0.99%	1.66%	2.63%	0.63	47.27%	
6/29/2011	31.73	-0.06%	0.84%	-1.73%	0.08%	-0.15%	2.63%	(0.06)	4.42%	
6/30/2011	32.82	3.44%	1.01%	-0.10%	0.70%	2.74%	2.63%	1.04	70.22%	
7/1/2011	33.63	2.47%	1.45%	0.58%	1.31%	1.16%	2.63%	0.44	34.00%	
7/5/2011	33.75	0.36%	-0.13%	-1.44%	-0.69%	1.05%	2.63%	0.40	30.83%	
7/6/2011	34.58	2.46%	0.14%	0.76%	0.16%	2.30%	2.63%	0.40	61.68%	
7/7/2011	35.44	2.49%	1.05%	-0.64%	0.62%	1.87%	2.63%	0.37	52.12%	
7/8/2011	35.44	-0.06%	-0.70%	0.04%	-0.78%	0.72%	2.63%	0.71	21.63%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
7/11/2011	35.02	-1.13%	-1.81%	0.09%	-1.79%	0.66%	2.64%	0.25	19.64%	
7/12/2011	35.14	0.34%	-0.44%	1.05%	-0.26%	0.60%	2.63%	0.23	18.09%	
7/13/2011	35.52	1.08%	0.32%	-0.45%	0.03%	1.05%	2.64%	0.40	30.99%	
7/14/2011	35.03	-1.38%	-0.67%	0.39%	-0.64%	-0.74%	2.64%	(0.28)	21.95%	
7/15/2011	35.02	-0.03%	0.56%	-1.32%	0.03%	-0.05%	2.64%	(0.02)	1.62%	
7/18/2011	35.02	0.00%	-0.81%	0.07%	-0.84%	0.84%	2.64%	0.32	24.93%	
7/19/2011	36.64	4.63%	1.63%	-0.11%	1.31%	3.32%	2.63%	1.26	79.13%	
7/20/2011	36.23	-1.12%	-0.05%	-0.57%	-0.31%	-0.81%	2.64%	(0.31)	24.06%	
7/21/2011	36.10	-0.36%	1.36%	-0.22%	1.11%	-1.46%	2.64%	(0.55)	42.04%	
7/22/2011	36.10	0.00%	0.09%	-2.05%	-0.52%	0.52%	2.64%	0.20	15.53%	
7/25/2011	35.52	-1.61%	-0.56%	-1.08%	-0.88%	-0.73%	2.64%	(0.28)	21.77%	
7/26/2011	34.93	-1.66%	-0.41%	-0.56%	-0.62%	-1.04%	2.64%	(0.39)	30.57%	
7/27/2011	34.18	-2.15%	-2.03%	0.09%	-1.94%	-0.20%	2.63%	(0.08)	6.16%	
7/28/2011	33.88	-0.88%	-0.31%	1.22%	-0.11%	-0.77%	2.63%	(0.29)	23.00%	
7/29/2011	33.69	-0.56%	-0.64%	0.72%	-0.54%	-0.03%	2.63%	(0.01)	0.77%	
8/1/2011	33.52	-0.50%	-0.41%	-2.58%	-1.44%	0.94%	2.49%	0.38	29.31%	
8/2/2011	33.25	-0.81%	-2.56%	-0.30%	-2.48%	1.67%	2.48%	0.67	49.94%	
8/3/2011	33.85	1.80%	0.54%	0.88%	0.75%	1.06%	2.48%	0.43	32.92%	
8/4/2011	32.44	-4.17%	-4.78%	0.26%	-4.34%	0.18%	2.48%	0.07	5.70%	
8/5/2011	32.54	0.31%	-0.06%	0.87%	0.17%	0.13%	2.48%	0.05	4.29%	
8/8/2011	30.38	-6.64%	-6.65%	-0.76%	-6.33%	-0.31%	2.47%	(0.13)	9.97%	
8/9/2011	31.66	4.21%	4.74%	-0.94%	3.95%	0.26%	2.47%	0.10	8.35%	
8/10/2011	30.16	-4.74%	-4.38%	-0.73%	-4.34%	-0.40%	2.46%	(0.16)	12.76%	
8/11/2011	31.21	3.48%	4.65%	-0.30%	4.18%	-0.70%	2.46%	(0.29)	22.47%	
8/12/2011	31.73	1.67%	0.53%	1.08%	0.80%	0.87%	2.45%	0.35	27.57%	
8/15/2011	31.95	0.69%	2.19%	-0.67%	1.78%	-1.09%	2.46%	(0.44)	34.19%	
8/16/2011	31.95	0.00%	-0.96%	0.53%	-0.79%	0.79%	2.45%	0.32	25.11%	
8/17/2011	31.93	-0.06%	0.12%	0.59%	0.27%	-0.33%	2.42%	(0.14)	10.76%	
8/18/2011	31.00	-2.91%	-4.45%	-0.38%	-4.32%	1.40%	2.42%	0.58	43.80%	
8/19/2011	30.70	-0.97%	-1.50%	1.71%	-0.88%	-0.09%	2.42%	(0.04)	2.95%	
8/22/2011	30.94	0.78%	0.03%	-0.32%	-0.13%	0.91%	2.41%	0.38	29.31%	
8/23/2011	32.05	3.59%	3.43%	2.12%	3.74%	-0.16%	2.41%	(0.06)	5.17%	
8/24/2011	31.79	-0.81%	1.33%	0.73%	1.41%	-2.22%	2.40%	(0.93)	64.46%	
8/25/2011	31.29	-1.57%	-1.55%	0.33%	-1.30%	-0.27%	2.40%	(0.11)	8.96%	
8/26/2011	32.50	3.87%	1.53%	0.23%	1.41%	2.46%	2.40%	1.02	69.30%	
8/29/2011	33.83	4.09%	2.84%	-0.34%	2.42%	1.68%	2.41%	0.69	51.17%	
8/30/2011	33.87	0.12%	0.26%	-0.48%	0.05%	0.07%	2.41%	0.03	2.30%	
8/31/2011	34.26	1.15%	0.50%	0.65%	0.67%	0.49%	2.41%	0.20	15.93%	
9/1/2011	33.24	-2.98%	-1.18%	0.19%	-1.01%	-1.96%	2.41%	(0.81)	58.36%	
9/2/2011	32.08	-3.49%	-2.52%	-0.23%	-2.41%	-1.08%	2.41%	(0.45)	34.53%	
9/6/2011	31.52	-1.75%	-0.74%	0.51%	-0.54%	-1.21%	2.42%	(0.50)	38.17%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
9/7/2011	32.76	3.93%	2.89%	0.26%	2.72%	1.22%	2.41%	0.50	38.57%	
9/8/2011	32.05	-2.17%	-1.06%	-0.74%	-1.25%	-0.92%	2.41%	(0.38)	29.66%	
9/9/2011	30.92	-3.53%	-2.67%	-1.34%	-2.95%	-0.58%	2.41%	(0.24)	18.91%	
9/12/2011	30.66	-0.84%	0.70%	-0.28%	0.53%	-1.37%	2.40%	(0.57)	43.13%	
9/13/2011	31.16	1.63%	0.95%	0.12%	0.87%	0.76%	2.39%	0.32	24.81%	
9/14/2011	31.40	0.77%	1.35%	0.16%	1.27%	-0.50%	2.39%	(0.21)	16.60%	
9/15/2011	31.46	0.19%	1.74%	-0.78%	1.32%	-1.13%	2.35%	(0.48)	36.78%	
9/16/2011	31.88	1.34%	0.57%	0.18%	0.52%	0.82%	2.35%	0.35	27.18%	
9/19/2011	31.76	-0.38%	-0.98%	-1.38%	-1.46%	1.08%	2.36%	0.46	35.32%	
9/20/2011	32.14	1.20%	-0.16%	1.61%	0.30%	0.89%	2.35%	0.38	29.61%	
9/21/2011	32.19	0.16%	-2.94%	-0.54%	-2.98%	3.14%	2.35%	1.33	81.65%	
9/22/2011	30.43	-5.47%	-3.19%	-0.52%	-3.11%	-2.36%	2.36%	(1.00)	68.14%	
9/23/2011	31.93	4.93%	0.62%	-0.35%	0.39%	4.54%	2.36%	1.92	94.43%	*
9/26/2011	32.75	2.57%	2.33%	-0.11%	2.05%	0.52%	2.38%	0.22	17.22%	
9/27/2011	33.40	1.98%	1.07%	1.08%	1.28%	0.70%	2.38%	0.30	23.20%	
9/28/2011	32.96	-1.32%	-2.04%	-0.27%	-2.05%	0.74%	2.37%	0.31	24.32%	
9/29/2011	33.17	0.64%	0.82%	-1.12%	0.31%	0.32%	2.37%	0.14	10.79%	
9/30/2011	32.64	-1.60%	-2.50%	0.52%	-2.15%	0.56%	2.35%	0.24	18.68%	
10/3/2011	32.21	-1.32%	-2.84%	-1.96%	-3.35%	2.03%	2.35%	0.86	61.10%	
10/4/2011	33.25	3.23%	2.26%	-0.32%	1.92%	1.31%	2.35%	0.56	42.12%	
10/5/2011	33.83	1.74%	1.84%	-0.26%	1.58%	0.17%	2.35%	0.07	5.70%	
10/6/2011	34.64	2.39%	1.84%	-0.87%	1.38%	1.02%	2.35%	0.43	33.49%	
10/7/2011	33.81	-2.40%	-0.81%	0.43%	-0.61%	-1.79%	2.35%	(0.76)	55.23%	
10/10/2011	33.88	0.21%	3.41%	-1.23%	2.79%	-2.58%	2.34%	(1.10)	72.89%	
10/11/2011	33.97	0.27%	0.06%	-0.89%	-0.24%	0.51%	2.34%	0.22	17.22%	
10/12/2011	33.89	-0.24%	1.00%	-1.39%	0.44%	-0.68%	2.34%	(0.29)	22.80%	
10/13/2011	36.13	6.61%	-0.29%	0.08%	-0.24%	6.85%	2.34%	2.92	99.62%	**
10/14/2011	37.13	2.77%	1.74%	-0.67%	1.39%	1.38%	2.36%	0.59	44.18%	
10/17/2011	36.00	-3.04%	-1.93%	-0.73%	-1.96%	-1.08%	2.36%	(0.46)	35.40%	
10/18/2011	36.54	1.50%	2.04%	-0.60%	1.70%	-0.20%	2.36%	(0.08)	6.67%	
10/19/2011	36.43	-0.30%	-1.25%	2.61%	-0.26%	-0.04%	2.35%	(0.02)	1.31%	
10/20/2011	35.60	-2.28%	0.46%	-0.84%	0.17%	-2.45%	2.35%	(1.04)	70.01%	
10/21/2011	36.13	1.49%	1.88%	0.51%	1.97%	-0.48%	2.33%	(0.21)	16.27%	
10/24/2011	37.29	3.21%	1.29%	0.67%	1.44%	1.77%	2.33%	0.76	55.19%	
10/25/2011	36.95	-0.91%	-2.00%	-0.33%	-1.95%	1.04%	2.32%	0.45	34.50%	
10/26/2011	36.36	-1.60%	1.05%	-1.04%	0.60%	-2.20%	2.32%	(0.95)	65.54%	
10/27/2011	37.37	2.78%	3.43%	-0.28%	3.04%	-0.26%	2.33%	(0.11)	8.93%	
10/28/2011	37.20	-0.45%	0.04%	0.90%	0.40%	-0.86%	2.33%	(0.37)	28.69%	
10/31/2011	36.51	-1.85%	-2.47%	0.69%	-1.98%	0.13%	2.29%	0.06	4.43%	
11/1/2011	34.89	-4.44%	-2.79%	-1.49%	-2.97%	-1.46%	2.29%	(0.64)	47.66%	
11/2/2011	30.46	-12.70%	1.62%	0.64%	1.74%	-14.43%	2.29%	(6.31)	100.00%	**

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
11/3/2011	29.44	-3.35%	1.90%	0.96%	2.12%	-5.47%	2.29%	(2.39)	98.25%	**
11/4/2011	29.39	-0.17%	-0.63%	-0.59%	-0.73%	0.56%	2.31%	0.24	19.17%	
11/7/2011	29.00	-1.33%	0.64%	0.49%	0.75%	-2.08%	2.32%	(0.90)	62.89%	
11/8/2011	29.96	3.31%	1.23%	-0.52%	0.98%	2.33%	2.32%	1.01	68.54%	
11/9/2011	29.13	-2.77%	-3.66%	0.04%	-3.29%	0.52%	2.32%	0.22	17.62%	
11/10/2011	29.51	1.30%	0.88%	0.13%	0.87%	0.44%	2.32%	0.19	14.93%	
11/11/2011	30.59	3.66%	1.95%	0.15%	1.85%	1.81%	2.31%	0.78	56.46%	
11/14/2011	30.04	-1.80%	-0.94%	-0.24%	-0.88%	-0.92%	2.32%	(0.40)	30.83%	
11/15/2011	30.21	0.57%	0.50%	-0.11%	0.47%	0.09%	2.32%	0.04	3.22%	
11/16/2011	29.85	-1.19%	-1.63%	-0.81%	-1.65%	0.46%	1.93%	0.24	18.71%	
11/17/2011	29.55	-1.01%	-1.68%	-0.13%	-1.48%	0.47%	1.91%	0.25	19.42%	
11/18/2011	28.27	-4.33%	-0.03%	-0.41%	-0.07%	-4.26%	1.91%	(2.24)	97.38%	**
11/21/2011	28.27	0.00%	-1.86%	0.12%	-1.58%	1.58%	1.92%	0.82	58.83%	
11/22/2011	28.78	1.80%	-0.41%	2.33%	0.58%	1.22%	1.92%	0.63	47.37%	
11/23/2011	28.16	-2.15%	-2.21%	0.51%	-1.70%	-0.45%	1.92%	(0.24)	18.70%	
11/25/2011	28.25	0.32%	-0.25%	-0.39%	-0.27%	0.59%	1.92%	0.31	24.15%	
11/28/2011	29.26	3.58%	2.94%	0.39%	2.95%	0.62%	1.92%	0.32	25.44%	
11/29/2011	29.14	-0.41%	0.26%	-0.10%	0.31%	-0.72%	1.92%	(0.38)	29.42%	
11/30/2011	30.42	4.39%	4.35%	1.10%	4.54%	-0.15%	1.91%	(0.08)	6.32%	
12/1/2011	30.65	0.76%	-0.19%	0.79%	0.26%	0.50%	1.91%	0.26	20.52%	
12/2/2011	30.44	-0.69%	-0.02%	-5.29%	-1.99%	1.30%	1.91%	0.68	50.40%	
12/5/2011	31.01	1.87%	1.03%	2.04%	1.80%	0.08%	1.91%	0.04	3.20%	
12/6/2011	31.38	1.19%	0.11%	-0.29%	0.14%	1.05%	1.91%	0.55	41.93%	
12/7/2011	31.37	-0.03%	0.23%	0.52%	0.53%	-0.56%	1.91%	(0.29)	23.16%	
12/8/2011	30.13	-3.95%	-2.11%	-1.20%	-2.24%	-1.71%	1.91%	(0.90)	62.87%	
12/9/2011	31.05	3.05%	1.69%	-0.38%	1.58%	1.47%	1.91%	0.77	55.90%	
12/12/2011	30.66	-1.26%	-1.49%	0.90%	-0.99%	-0.27%	1.91%	(0.14)	11.25%	
12/13/2011	30.35	-1.01%	-0.85%	0.57%	-0.50%	-0.52%	1.91%	(0.27)	21.28%	
12/14/2011	29.59	-2.50%	-1.12%	0.05%	-0.93%	-1.58%	1.91%	(0.83)	59.03%	
12/15/2011	30.44	2.87%	0.33%	0.42%	0.55%	2.32%	1.91%	1.22	77.50%	
12/16/2011	30.50	0.20%	0.32%	-0.49%	0.26%	-0.06%	1.91%	(0.03)	2.47%	
12/19/2011	30.03	-1.54%	-1.17%	0.31%	-0.90%	-0.65%	1.91%	(0.34)	26.37%	
12/20/2011	30.77	2.46%	3.00%	-0.09%	2.90%	-0.44%	1.91%	(0.23)	18.19%	
12/21/2011	32.05	4.16%	0.20%	0.92%	0.60%	3.56%	1.91%	1.86	93.62%	*
12/22/2011	32.81	2.37%	0.85%	0.93%	1.26%	1.11%	1.92%	0.58	43.54%	
12/23/2011	33.04	0.70%	0.90%	-0.41%	0.83%	-0.12%	1.92%	(0.06)	5.15%	
12/27/2011	33.12	0.24%	0.01%	-0.05%	0.11%	0.13%	1.92%	0.07	5.32%	
12/28/2011	32.92	-0.60%	-1.23%	0.17%	-0.97%	0.37%	1.92%	0.19	15.13%	
12/29/2011	33.58	2.00%	1.07%	1.13%	1.57%	0.44%	1.92%	0.23	18.03%	
12/30/2011	33.56	-0.06%	-0.42%	0.10%	-0.23%	0.17%	1.92%	0.09	7.08%	
1/3/2012	32.24	-3.93%	1.55%	-0.26%	1.50%	-5.44%	1.92%	(2.83)	99.49%	**

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1/4/2012	31.62	-1.92%	0.04%	-0.68%	-0.11%	-1.81%	1.95%	(0.93)	64.57%	
1/5/2012	30.40	-3.86%	0.29%	0.35%	0.52%	-4.38%	1.96%	(2.24)	97.38%	**
1/6/2012	30.13	-0.89%	-0.22%	0.89%	0.24%	-1.13%	1.97%	(0.57)	43.20%	
1/9/2012	29.00	-3.75%	0.23%	0.58%	0.51%	-4.26%	1.98%	(2.16)	96.82%	**
1/10/2012	29.48	1.66%	0.89%	-0.51%	0.69%	0.97%	1.99%	0.49	37.36%	
1/11/2012	30.08	2.04%	0.04%	0.36%	0.21%	1.83%	1.97%	0.93	64.46%	
1/12/2012	30.02	-0.20%	0.24%	-0.51%	0.08%	-0.28%	1.97%	(0.14)	11.35%	
1/13/2012	29.89	-0.43%	-0.49%	0.31%	-0.28%	-0.16%	1.92%	(0.08)	6.54%	
1/17/2012	29.71	-0.60%	0.35%	0.04%	0.45%	-1.06%	1.90%	(0.56)	42.10%	
1/18/2012	29.64	-0.24%	1.13%	0.54%	1.36%	-1.59%	1.90%	(0.84)	59.77%	
1/19/2012	29.82	0.61%	0.50%	0.55%	0.77%	-0.16%	1.89%	(0.09)	6.81%	
1/20/2012	29.14	-2.28%	0.07%	1.19%	0.59%	-2.87%	1.89%	(1.52)	87.02%	
1/23/2012	30.06	3.16%	0.05%	-0.33%	0.03%	3.13%	1.90%	1.65	89.90%	
1/24/2012	30.47	1.36%	-0.10%	-0.02%	0.01%	1.35%	1.91%	0.71	52.08%	
1/25/2012	30.91	1.44%	0.87%	1.20%	1.34%	0.11%	1.90%	0.06	4.52%	
1/26/2012	31.35	1.42%	-0.57%	-0.27%	-0.50%	1.92%	1.90%	1.01	68.64%	
1/27/2012	31.25	-0.32%	-0.15%	0.26%	0.08%	-0.40%	1.91%	(0.21)	16.48%	
1/30/2012	30.97	-0.90%	-0.25%	-0.46%	-0.21%	-0.68%	1.79%	(0.38)	29.57%	
1/31/2012	29.43	-4.97%	-0.05%	0.54%	0.33%	-5.30%	1.79%	(2.96)	99.66%	**
2/1/2012	30.32	3.02%	0.91%	0.81%	1.26%	1.76%	1.82%	0.97	66.64%	
2/2/2012	30.76	1.45%	0.12%	-0.50%	0.11%	1.34%	1.81%	0.74	54.05%	
2/3/2012	30.66	-0.33%	1.47%	-1.43%	1.04%	-1.37%	1.80%	(0.76)	55.16%	
2/6/2012	30.75	0.29%	-0.04%	0.91%	0.39%	-0.10%	1.78%	(0.06)	4.51%	
2/7/2012	30.98	0.75%	0.20%	-0.10%	0.29%	0.46%	1.78%	0.26	20.40%	
2/8/2012	30.81	-0.55%	0.25%	-0.34%	0.25%	-0.80%	1.78%	(0.45)	34.55%	
2/9/2012	34.52	12.04%	0.15%	-1.18%	-0.12%	12.17%	1.78%	6.85	100.00%	**
2/10/2012	34.19	-0.96%	-0.69%	0.80%	-0.25%	-0.70%	1.78%	(0.40)	30.76%	
2/13/2012	34.32	0.38%	0.70%	0.41%	0.89%	-0.51%	1.78%	(0.29)	22.48%	
2/14/2012	34.76	1.28%	-0.08%	-0.77%	-0.20%	1.48%	1.78%	0.83	59.54%	
2/15/2012	35.32	1.61%	-0.50%	0.22%	-0.28%	1.89%	1.78%	1.06	70.99%	
2/16/2012	35.72	1.13%	1.12%	-0.33%	1.04%	0.10%	1.78%	0.05	4.26%	
2/17/2012	35.38	-0.95%	0.24%	0.19%	0.39%	-1.35%	1.78%	(0.76)	54.98%	
2/21/2012	35.22	-0.45%	0.07%	-2.04%	-0.43%	-0.03%	1.78%	(0.02)	1.21%	
2/22/2012	35.16	-0.17%	-0.33%	-0.58%	-0.37%	0.20%	1.78%	0.11	8.92%	
2/23/2012	34.90	-0.74%	0.45%	-1.00%	0.22%	-0.96%	1.78%	(0.54)	40.88%	
2/24/2012	35.03	0.37%	0.18%	1.21%	0.60%	-0.23%	1.77%	(0.13)	10.39%	
2/27/2012	35.53	1.43%	0.14%	0.09%	0.26%	1.17%	1.76%	0.66	49.26%	
2/28/2012	35.34	-0.53%	0.35%	-0.01%	0.42%	-0.96%	1.76%	(0.54)	41.37%	
2/29/2012	34.50	-2.38%	-0.46%	-0.80%	-0.53%	-1.84%	1.76%	(1.05)	70.49%	•

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3/1/2012	34.52	0.06%	0.62%	-1.21%	0.33%	-0.27%	1.76%	(0.15)	12.21%	
3/2/2012	34.53	0.03%	-0.32%	-0.16%	-0.24%	0.27%	1.76%	0.15	12.30%	
3/5/2012	33.94	-1.71%	-0.38%	-0.25%	-0.34%	-1.37%	1.76%	(0.78)	56.33%	
3/6/2012	33.38	-1.65%	-1.53%	-0.07%	-1.34%	-0.31%	1.76%	(0.17)	13.82%	
3/7/2012	33.45	0.21%	0.72%	-0.14%	0.69%	-0.48%	1.75%	(0.27)	21.46%	
3/8/2012	33.47	0.06%	0.99%	0.61%	1.16%	-1.10%	1.75%	(0.63)	47.20%	
3/9/2012	33.99	1.55%	0.36%	-0.42%	0.27%	1.28%	1.75%	0.73	53.63%	
3/12/2012	33.46	-1.56%	0.02%	-0.09%	0.08%	-1.64%	1.75%	(0.94)	65.04%	
3/13/2012	33.67	0.63%	1.85%	0.68%	1.93%	-1.30%	1.75%	(0.74)	54.22%	
3/14/2012	33.77	0.30%	-0.12%	-0.25%	-0.10%	0.40%	1.75%	0.23	17.92%	
3/15/2012	34.81	3.08%	0.60%	0.91%	0.86%	2.22%	1.75%	1.27	79.49%	
3/16/2012	34.22	-1.69%	0.11%	0.89%	0.44%	-2.14%	1.75%	(1.22)	77.65%	
3/19/2012	34.45	0.67%	0.40%	-0.93%	0.22%	0.45%	1.73%	0.26	20.62%	
3/20/2012	34.36	-0.26%	-0.30%	0.33%	-0.09%	-0.17%	1.73%	(0.10)	7.95%	
3/21/2012	34.58	0.64%	-0.18%	-0.12%	-0.10%	0.74%	1.73%	0.43	33.22%	
3/22/2012	33.77	-2.34%	-0.72%	0.51%	-0.42%	-1.92%	1.73%	(1.11)	73.25%	
3/23/2012	33.75	-0.06%	0.31%	-0.44%	0.27%	-0.33%	1.73%	(0.19)	15.09%	
3/26/2012	34.18	1.27%	1.39%	1.48%	1.78%	-0.51%	1.72%	(0.29)	23.06%	
3/27/2012	34.11	-0.20%	-0.27%	-0.05%	-0.14%	-0.06%	1.72%	(0.04)	2.83%	
3/28/2012	34.13	0.06%	-0.47%	-0.17%	-0.36%	0.42%	1.72%	0.24	19.12%	
3/29/2012	34.08	-0.15%	-0.16%	-0.20%	-0.08%	-0.07%	1.72%	(0.04)	3.10%	
3/30/2012	33.71	-1.09%	0.37%	-0.27%	0.38%	-1.46%	1.71%	(0.86)	60.69%	
4/2/2012	34.23	1.54%	0.76%	-0.22%	0.74%	0.81%	1.71%	0.47	36.23%	
4/3/2012	34.35	0.35%	-0.38%	0.00%	-0.24%	0.60%	1.71%	0.35	27.21%	
4/4/2012	32.83	-4.43%	-1.02%	-1.28%	-1.16%	-3.26%	1.71%	(1.91)	94.30%	*
4/5/2012	32.80	-0.09%	-0.03%	-0.24%	0.00%	-0.09%	1.72%	(0.05)	4.13%	
4/9/2012	32.15	-1.98%	-1.13%	-0.61%	-1.14%	-0.84%	1.72%	(0.49)	37.43%	
4/10/2012	31.83	-1.00%	-1.71%	0.57%	-1.36%	0.36%	1.72%	0.21	16.68%	
4/11/2012	32.55	2.26%	0.76%	0.29%	0.86%	1.40%	1.72%	0.82	58.58%	
4/12/2012	32.90	1.08%	1.38%	0.21%	1.42%	-0.34%	1.72%	(0.20)	15.88%	
4/13/2012	32.41	-1.49%	-1.25%	-1.34%	-1.46%	-0.03%	1.72%	(0.02)	1.45%	
4/16/2012	32.31	-0.32%	-0.05%	-0.22%	-0.04%	-0.29%	1.72%	(0.17)	13.25%	
4/17/2012	33.39	3.36%	1.55%	0.29%	1.60%	1.76%	1.72%	1.02	69.35%	
4/18/2012	33.66	0.81%	-0.40%	0.31%	-0.21%	1.02%	1.72%	0.59	44.60%	
4/19/2012	34.15	1.46%	-0.59%	1.14%	-0.12%	1.57%	1.56%	1.01	68.46%	

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4/20/2012	33.57	-1.70%	0.12%	-0.32%	0.04%	-1.74%	1.57%	(1.11)	73.22%	
4/23/2012	32.98	-1.76%	-0.84%	0.16%	-0.70%	-1.06%	1.57%	(0.67)	49.72%	
4/24/2012	33.38	1.21%	0.37%	0.04%	0.41%	0.80%	1.57%	0.51	39.02%	
4/25/2012	33.69	0.93%	1.38%	0.36%	1.50%	-0.58%	1.57%	(0.37)	28.59%	
4/26/2012	34.76	3.18%	0.67%	-0.37%	0.56%	2.62%	1.57%	1.67	90.39%	*
4/27/2012	35.23	1.35%	0.24%	0.85%	0.60%	0.75%	1.58%	0.48	36.55%	
4/30/2012	34.81	-1.19%	-0.39%	1.12%	0.10%	-1.29%	1.57%	(0.82)	58.71%	
5/1/2012	34.50	-0.89%	0.57%	0.34%	0.73%	-1.62%	1.57%	(1.03)	69.58%	
5/2/2012	34.46	-0.12%	-0.24%	0.30%	-0.07%	-0.04%	1.57%	(0.03)	2.24%	
5/3/2012	33.90	-1.63%	-0.75%	0.87%	-0.39%	-1.24%	1.57%	(0.79)	56.97%	
5/4/2012	32.87	-3.04%	-1.61%	0.61%	-1.33%	-1.71%	1.57%	(1.09)	72.33%	
5/7/2012	33.00	0.40%	0.04%	0.27%	0.12%	0.28%	1.54%	0.18	14.23%	
5/8/2012	32.48	-1.58%	-0.41%	0.57%	-0.23%	-1.35%	1.54%	(0.87)	61.66%	
5/9/2012	32.39	-0.28%	-0.64%	0.81%	-0.39%	0.11%	1.54%	0.07	5.68%	
5/10/2012	33.07	2.10%	0.28%	0.35%	0.38%	1.72%	1.54%	1.12	73.46%	
5/11/2012	33.23	0.48%	-0.33%	-0.10%	-0.35%	0.83%	1.54%	0.54	41.07%	
5/14/2012	32.44	-2.38%	-1.10%	1.22%	-0.69%	-1.69%	1.54%	(1.10)	72.77%	
5/15/2012	32.12	-0.99%	-0.56%	0.13%	-0.50%	-0.48%	1.54%	(0.32)	24.73%	
5/16/2012	31.87	-0.78%	-0.41%	0.02%	-0.39%	-0.39%	1.53%	(0.25)	19.91%	
5/17/2012	31.35	-1.63%	-1.49%	-0.26%	-1.54%	-0.09%	1.53%	(0.06)	4.89%	
5/18/2012	31.00	-1.12%	-0.74%	0.02%	-0.71%	-0.40%	1.53%	(0.26)	20.78%	
5/21/2012	31.42	1.35%	1.61%	0.64%	1.72%	-0.36%	1.50%	(0.24)	19.14%	
5/22/2012	31.23	-0.60%	0.05%	-1.46%	-0.41%	-0.19%	1.50%	(0.13)	10.17%	
5/23/2012	31.37	0.45%	0.17%	-0.16%	0.09%	0.36%	1.50%	0.24	18.82%	
5/24/2012	31.74	1.18%	0.15%	0.92%	0.40%	0.78%	1.50%	0.52	39.70%	
5/25/2012	31.28	-1.45%	-0.22%	-0.06%	-0.24%	-1.21%	1.50%	(0.81)	57.94%	
5/29/2012	31.65	1.18%	1.12%	-0.36%	0.95%	0.23%	1.50%	0.15	12.16%	
5/30/2012	30.89	-2.40%	-1.40%	-0.55%	-1.54%	-0.86%	1.50%	(0.57)	43.15%	
5/31/2012	30.34	-1.78%	-0.22%	0.31%	-0.14%	-1.64%	1.50%	(1.09)	72.50%	
6/1/2012	29.96	-1.25%	-2.46%	0.55%	-2.25%	1.00%	1.50%	0.66	49.22%	
6/4/2012	29.75	-0.70%	0.01%	-0.31%	-0.10%	-0.60%	1.51%	(0.40)	31.02%	
6/5/2012	30.44	2.32%	0.58%	0.68%	0.75%	1.57%	1.50%	1.05	70.37%	
6/6/2012	31.64	3.94%	2.33%	-0.99%	1.92%	2.02%	1.50%	1.35	82.02%	
6/7/2012	31.72	0.25%	-0.01%	0.58%	0.17%	0.08%	1.51%	0.05	4.31%	
6/8/2012	31.96	0.76%	0.81%	0.12%	0.82%	-0.07%	1.51%	(0.05)	3.59%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
6/11/2012	31.31	-2.03%	-1.26%	0.44%	-1.06%	-0.97%	1.51%	(0.64)	47.93%	
6/12/2012	31.53	0.70%	1.17%	-0.41%	1.01%	-0.31%	1.51%	(0.20)	16.05%	
6/13/2012	31.05	-1.52%	-0.67%	-0.30%	-0.72%	-0.80%	1.50%	(0.53)	40.40%	
6/14/2012	31.49	1.42%	1.08%	0.31%	1.15%	0.27%	1.50%	0.18	14.35%	
6/15/2012	31.90	1.30%	1.03%	0.13%	1.05%	0.25%	1.50%	0.17	13.32%	
6/18/2012	32.38	1.50%	0.15%	1.00%	0.46%	1.04%	1.50%	0.69	51.07%	
6/19/2012	33.10	2.22%	0.98%	0.20%	1.03%	1.19%	1.50%	0.79	57.11%	
6/20/2012	33.34	0.73%	-0.16%	-0.01%	-0.13%	0.86%	1.50%	0.57	43.13%	
6/21/2012	32.58	-2.28%	-2.21%	0.62%	-1.92%	-0.36%	1.49%	(0.24)	19.24%	
6/22/2012	32.69	0.34%	0.72%	0.64%	0.91%	-0.57%	1.49%	(0.38)	29.69%	
6/25/2012	32.13	-1.71%	-1.58%	0.19%	-1.46%	-0.26%	1.49%	(0.17)	13.70%	
6/26/2012	32.28	0.47%	0.48%	-0.64%	0.29%	0.17%	1.49%	0.12	9.32%	
6/27/2012	32.40	0.37%	0.92%	0.70%	1.12%	-0.74%	1.48%	(0.50)	38.33%	
6/28/2012	32.21	-0.59%	-0.21%	0.01%	-0.18%	-0.41%	1.49%	(0.27)	21.64%	
6/29/2012	33.58	4.25%	2.50%	0.04%	2.43%	1.82%	1.48%	1.23	78.01%	
7/2/2012	34.03	1.34%	0.25%	0.83%	0.49%	0.85%	1.48%	0.57	43.41%	
7/3/2012	34.12	0.26%	0.65%	-0.47%	0.50%	-0.24%	1.48%	(0.16)	12.67%	
7/5/2012	33.93	-0.56%	-0.47%	-0.48%	-0.58%	0.02%	1.48%	0.02	1.24%	
7/6/2012	33.59	-1.00%	-0.91%	-0.29%	-0.96%	-0.05%	1.48%	(0.03)	2.52%	
7/9/2012	34.25	1.96%	-0.16%	0.72%	0.05%	1.92%	1.47%	1.30	80.62%	
7/10/2012	34.12	-0.38%	-0.81%	-0.16%	-0.83%	0.45%	1.48%	0.31	24.07%	
7/11/2012	33.38	-2.17%	0.01%	0.13%	0.05%	-2.22%	1.47%	(1.51)	86.70%	
7/12/2012	33.17	-0.63%	-0.50%	-0.33%	-0.59%	-0.04%	1.48%	(0.03)	2.00%	
7/13/2012	34.21	3.14%	1.65%	-1.13%	1.25%	1.89%	1.48%	1.28	79.68%	
7/16/2012	35.10	2.60%	-0.23%	0.25%	-0.16%	2.76%	1.49%	1.86	93.53%	*
7/17/2012	36.04	2.68%	0.74%	1.22%	1.08%	1.60%	1.49%	1.07	71.42%	
7/18/2012	35.74	-0.83%	0.68%	-1.41%	0.25%	-1.08%	1.50%	(0.72)	53.06%	
7/19/2012	35.52	-0.62%	0.28%	0.19%	0.34%	-0.95%	1.50%	(0.64)	47.52%	
7/20/2012	34.36	-3.27%	-1.00%	-0.96%	-1.28%	-1.99%	1.48%	(1.34)	81.80%	
7/23/2012	33.94	-1.22%	-0.89%	-0.71%	-1.11%	-0.12%	1.49%	(0.08)	6.27%	
7/24/2012	33.76	-0.53%	-0.90%	-0.27%	-0.98%	0.45%	1.49%	0.30	23.64%	
7/25/2012	34.33	1.69%	-0.03%	1.65%	0.50%	1.19%	1.48%	0.80	57.53%	
7/26/2012	34.37	0.12%	1.66%	-2.93%	0.63%	-0.51%	1.49%	(0.34)	26.76%	
7/27/2012	34.55	0.52%	1.91%	1.22%	2.26%	-1.73%	1.48%	(1.17)	75.61%	
7/30/2012	34.73	0.52%	-0.04%	-0.72%	-0.29%	0.81%	1.49%	0.54	41.13%	

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7/31/2012	34.31	-1.21%	-0.43%	0.68%	-0.18%	-1.02%	1.49%	(0.69)	50.73%	
8/1/2012	34.00	-0.90%	-0.29%	0.07%	-0.25%	-0.65%	1.49%	(0.44)	33.65%	
8/2/2012	31.92	-6.12%	-0.73%	-0.44%	-0.85%	-5.27%	1.49%	(3.54)	99.95%	**
8/3/2012	32.08	0.50%	1.92%	0.59%	2.04%	-1.54%	1.49%	(1.03)	69.81%	
8/6/2012	32.24	0.50%	0.24%	-0.51%	0.03%	0.47%	1.49%	0.31	24.43%	
8/7/2012	32.61	1.15%	0.51%	0.71%	0.70%	0.44%	1.49%	0.30	23.42%	
8/8/2012	32.26	-1.07%	0.09%	0.00%	0.07%	-1.15%	1.49%	(0.77)	55.81%	
8/9/2012	32.10	-0.50%	0.08%	-0.47%	-0.10%	-0.40%	1.49%	(0.27)	21.06%	
8/10/2012	32.14	0.12%	0.22%	0.02%	0.20%	-0.07%	1.49%	(0.05)	3.80%	
8/13/2012	31.43	-2.21%	-0.11%	-0.11%	-0.16%	-2.05%	1.49%	(1.37)	82.84%	
8/14/2012	31.19	-0.76%	0.00%	-0.22%	-0.10%	-0.66%	1.50%	(0.44)	34.28%	
8/15/2012	31.33	0.45%	0.15%	0.41%	0.24%	0.21%	1.49%	0.14	10.91%	
8/16/2012	31.82	1.56%	0.72%	-1.32%	0.25%	1.32%	1.49%	0.88	62.17%	
8/17/2012	31.63	-0.60%	0.19%	1.04%	0.47%	-1.07%	1.49%	(0.72)	52.61%	
8/20/2012	31.90	0.85%	0.00%	0.88%	0.22%	0.63%	1.50%	0.42	32.57%	
8/21/2012	31.92	0.06%	-0.35%	0.03%	-0.37%	0.44%	1.50%	0.29	22.95%	
8/22/2012	31.82	-0.31%	0.03%	-0.97%	-0.30%	-0.01%	1.49%	(0.01)	0.55%	
8/23/2012	32.20	1.19%	-0.81%	0.19%	-0.79%	1.98%	1.49%	1.33	81.45%	
8/24/2012	32.16	-0.12%	0.66%	-0.19%	0.56%	-0.68%	1.50%	(0.46)	35.20%	
8/27/2012	32.37	0.65%	-0.05%	-0.04%	-0.10%	0.75%	1.49%	0.50	38.52%	
8/28/2012	32.80	1.33%	-0.07%	0.38%	0.01%	1.31%	1.49%	0.88	62.24%	
8/29/2012	33.68	2.68%	0.11%	0.74%	0.32%	2.36%	1.49%	1.59	88.72%	
8/30/2012	33.56	-0.36%	-0.77%	0.07%	-0.75%	0.39%	1.49%	0.26	20.65%	
8/31/2012	33.89	0.98%	0.51%	-0.27%	0.38%	0.60%	1.49%	0.40	31.27%	
9/4/2012	34.50	1.80%	-0.11%	1.39%	0.36%	1.44%	1.49%	0.97	66.63%	
9/5/2012	34.93	1.25%	-0.08%	-0.14%	-0.13%	1.37%	1.49%	0.92	64.29%	
9/6/2012	35.58	1.86%	2.06%	-0.16%	1.92%	-0.06%	1.49%	(0.04)	3.20%	
9/7/2012	34.95	-1.77%	0.41%	0.05%	0.42%	-2.19%	1.49%	(1.47)	85.77%	
9/10/2012	34.54	-1.17%	-0.61%	-0.12%	-0.60%	-0.57%	1.50%	(0.38)	29.81%	
9/11/2012	33.53	-2.92%	0.31%	-0.11%	0.26%	-3.18%	1.49%	(2.13)	96.60%	**
9/12/2012	33.84	0.91%	0.24%	0.14%	0.26%	0.65%	1.50%	0.43	33.29%	
9/13/2012	33.94	0.31%	1.64%	-0.33%	1.42%	-1.11%	1.50%	(0.74)	53.91%	
9/14/2012	34.26	0.94%	0.40%	0.98%	0.70%	0.24%	1.50%	0.16	12.65%	
9/17/2012	34.65	1.14%	-0.31%	0.16%	-0.23%	1.37%	1.51%	0.91	63.68%	
9/18/2012	34.90	0.72%	-0.13%	0.53%	0.07%	0.65%	1.51%	0.43	33.37%	

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9/19/2012	34.91	0.03%	0.12%	-0.18%	0.06%	-0.03%	1.50%	(0.02)	1.50%	
9/20/2012	34.79	-0.34%	-0.04%	0.45%	0.13%	-0.47%	1.50%	(0.32)	24.79%	
9/21/2012	34.69	-0.29%	-0.01%	0.66%	0.22%	-0.51%	1.50%	(0.34)	26.44%	
9/24/2012	34.66	-0.09%	-0.22%	0.23%	-0.15%	0.06%	1.46%	0.04	3.32%	
9/25/2012	34.79	0.38%	-1.04%	0.23%	-0.90%	1.28%	1.46%	0.88	61.89%	
9/26/2012	34.19	-1.72%	-0.55%	-0.06%	-0.55%	-1.18%	1.46%	(0.81)	57.99%	
9/27/2012	34.65	1.35%	0.97%	0.11%	0.92%	0.43%	1.46%	0.29	23.06%	
9/28/2012	34.60	-0.14%	-0.45%	0.27%	-0.34%	0.19%	1.46%	0.13	10.59%	
10/1/2012	34.46	-0.40%	0.27%	0.01%	0.23%	-0.63%	1.46%	(0.43)	33.36%	
10/2/2012	34.29	-0.49%	0.09%	0.52%	0.25%	-0.74%	1.46%	(0.51)	38.66%	
10/3/2012	35.82	4.46%	0.38%	0.01%	0.33%	4.13%	1.46%	2.83	99.50%	**
10/4/2012	36.56	2.07%	0.72%	0.30%	0.77%	1.29%	1.48%	0.88	61.82%	
10/5/2012	36.42	-0.38%	0.00%	0.53%	0.19%	-0.57%	1.48%	(0.39)	30.08%	
10/8/2012	36.06	-0.99%	-0.35%	-0.51%	-0.54%	-0.44%	1.48%	(0.30)	23.61%	
10/9/2012	34.86	-3.33%	-0.99%	-4.03%	-2.55%	-0.78%	1.47%	(0.53)	40.34%	
10/10/2012	34.26	-1.72%	-0.61%	0.20%	-0.53%	-1.20%	1.47%	(0.81)	58.30%	
10/11/2012	34.37	0.32%	0.04%	0.10%	0.05%	0.27%	1.46%	0.19	14.68%	
10/12/2012	34.21	-0.47%	-0.29%	0.43%	-0.14%	-0.32%	1.46%	(0.22)	17.36%	
10/15/2012	34.50	0.85%	0.81%	-0.52%	0.54%	0.31%	1.40%	0.22	17.49%	
10/16/2012	35.51	2.93%	1.03%	0.21%	1.05%	1.88%	1.40%	1.35	82.09%	
10/17/2012	35.20	-0.87%	0.42%	-1.94%	-0.40%	-0.48%	1.40%	(0.34)	26.60%	
10/18/2012	34.43	-2.19%	-0.24%	-1.02%	-0.69%	-1.49%	1.40%	(1.07)	71.43%	
10/19/2012	34.80	1.07%	-1.66%	-0.40%	-1.87%	2.94%	1.40%	2.10	96.34%	**
10/22/2012	35.41	1.75%	0.05%	0.72%	0.29%	1.46%	1.41%	1.03	69.81%	
10/23/2012	35.28	-0.37%	-1.44%	-0.36%	-1.60%	1.23%	1.41%	0.87	61.61%	
10/24/2012	34.76	-1.47%	-0.31%	0.57%	-0.10%	-1.37%	1.41%	(0.97)	66.93%	
10/25/2012	34.85	0.26%	0.30%	-0.35%	0.13%	0.13%	1.41%	0.10	7.56%	
10/26/2012	35.05	0.57%	-0.07%	-0.24%	-0.20%	0.78%	1.41%	0.55	41.95%	
10/31/2012	35.70	1.85%	0.03%	-0.16%	-0.05%	1.91%	1.40%	1.36	82.47%	
11/1/2012	36.05	0.98%	1.10%	-0.03%	1.08%	-0.10%	1.41%	(0.07)	5.58%	
11/2/2012	36.62	1.58%	-0.94%	0.44%	-0.78%	2.36%	1.41%	1.68	90.50%	*
11/5/2012	35.81	-2.21%	0.23%	0.56%	0.46%	-2.67%	1.37%	(1.95)	94.82%	*
11/6/2012	35.91	0.28%	0.79%	0.11%	0.85%	-0.57%	1.37%	(0.42)	32.16%	
11/7/2012	35.15	-2.12%	-2.28%	-0.42%	-2.51%	0.40%	1.37%	0.29	22.78%	
11/8/2012	34.75	-1.14%	-1.22%	-0.23%	-1.34%	0.21%	1.37%	0.15	11.93%	

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11/9/2012	34.51	-0.69%	0.17%	0.30%	0.29%	-0.98%	1.36%	(0.72)	52.90%	
11/12/2012	34.79	0.81%	0.01%	0.16%	0.06%	0.76%	1.36%	0.56	42.13%	
11/13/2012	34.29	-1.44%	-0.37%	0.04%	-0.38%	-1.06%	1.36%	(0.78)	56.44%	
11/14/2012	34.25	-0.12%	-1.35%	0.03%	-1.39%	1.27%	1.36%	0.94	65.07%	
11/15/2012	34.50	0.73%	-0.15%	0.45%	0.01%	0.72%	1.36%	0.53	40.38%	
11/16/2012	35.44	2.72%	0.49%	-0.31%	0.37%	2.36%	1.36%	1.73	91.58%	*
11/19/2012	35.39	-0.14%	1.99%	-0.70%	1.78%	-1.92%	1.34%	(1.43)	84.53%	
11/20/2012	35.00	-1.10%	0.07%	1.12%	0.51%	-1.62%	1.35%	(1.20)	76.83%	
11/21/2012	37.24	6.40%	0.23%	-1.60%	-0.37%	6.77%	1.35%	5.02	100.00%	**
11/23/2012	38.03	2.12%	1.32%	0.12%	1.39%	0.73%	1.41%	0.52	39.39%	
11/26/2012	37.78	-0.66%	-0.20%	-0.52%	-0.35%	-0.31%	1.41%	(0.22)	17.21%	
11/27/2012	37.89	0.29%	-0.51%	-0.08%	-0.55%	0.84%	1.41%	0.60	44.85%	
11/28/2012	37.83	-0.16%	0.82%	-0.28%	0.77%	-0.93%	1.41%	(0.66)	48.95%	
11/29/2012	37.29	-1.43%	0.44%	-0.45%	0.33%	-1.75%	1.41%	(1.24)	78.54%	
11/30/2012	37.20	-0.24%	0.02%	0.32%	0.11%	-0.35%	1.41%	(0.25)	19.49%	
12/3/2012	36.97	-0.62%	-0.47%	-0.33%	-0.60%	-0.02%	1.42%	(0.02)	1.22%	
12/4/2012	37.35	1.03%	-0.17%	1.01%	0.15%	0.88%	1.41%	0.62	46.48%	
12/5/2012	37.35	0.00%	0.19%	-0.07%	0.17%	-0.17%	1.41%	(0.12)	9.53%	
12/6/2012	37.69	0.91%	0.36%	0.28%	0.45%	0.46%	1.41%	0.33	25.58%	
12/7/2012	37.81	0.32%	0.30%	0.00%	0.30%	0.02%	1.41%	0.01	1.08%	
12/10/2012	38.52	1.88%	0.04%	0.47%	0.19%	1.69%	1.41%	1.20	76.77%	
12/11/2012	39.23	1.84%	0.66%	-0.63%	0.44%	1.41%	1.41%	1.00	68.00%	
12/12/2012	39.27	0.10%	0.07%	-0.40%	-0.05%	0.16%	1.41%	0.11	8.85%	
12/13/2012	38.69	-1.48%	-0.61%	0.17%	-0.53%	-0.95%	1.41%	(0.67)	49.68%	
12/14/2012	37.58	-2.87%	-0.41%	0.06%	-0.38%	-2.49%	1.41%	(1.76)	92.10%	*
12/17/2012	37.96	1.01%	1.19%	-0.23%	1.09%	-0.07%	1.42%	(0.05)	4.17%	
12/18/2012	38.32	0.95%	1.15%	-0.10%	1.09%	-0.14%	1.41%	(0.10)	7.99%	
12/19/2012	37.79	-1.38%	-0.76%	0.30%	-0.65%	-0.73%	1.41%	(0.52)	39.51%	
12/20/2012	38.01	0.58%	0.57%	0.09%	0.58%	0.00%	1.41%	0.00	0.22%	
12/21/2012	37.92	-0.24%	-0.93%	0.04%	-0.91%	0.68%	1.41%	0.48	36.87%	
12/24/2012	37.78	-0.37%	-0.23%	-0.49%	-0.39%	0.02%	1.39%	0.01	1.00%	
12/26/2012	37.47	-0.82%	-0.48%	-0.59%	-0.66%	-0.17%	1.39%	(0.12)	9.61%	
12/27/2012	37.42	-0.13%	-0.10%	0.48%	0.01%	-0.14%	1.39%	(0.10)	7.78%	
12/28/2012	37.09	-0.88%	-1.09%	-0.36%	-1.20%	0.32%	1.39%	0.23	17.98%	
12/31/2012	37.52	1.16%	1.69%	-0.42%	1.50%	-0.34%	1.39%	(0.24)	19.26%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
1/2/2013	38.12	1.60%	2.56%	-0.22%	2.38%	-0.78%	1.39%	(0.56)	42.71%	
1/3/2013	37.00	-2.94%	-0.21%	1.12%	0.07%	-3.01%	1.39%	(2.17)	96.88%	**
1/4/2013	37.01	0.03%	0.49%	-0.23%	0.40%	-0.38%	1.36%	(0.28)	21.90%	
1/7/2013	36.87	-0.38%	-0.31%	1.49%	0.03%	-0.41%	1.33%	(0.31)	24.33%	
1/8/2013	37.15	0.76%	-0.29%	0.22%	-0.25%	1.01%	1.33%	0.76	55.17%	
1/9/2013	37.16	0.03%	0.27%	0.49%	0.38%	-0.36%	1.33%	(0.27)	21.17%	
1/10/2013	37.22	0.16%	0.76%	-0.01%	0.78%	-0.62%	1.30%	(0.48)	36.55%	
1/11/2013	37.31	0.24%	0.01%	0.35%	0.10%	0.14%	1.30%	0.11	8.46%	
1/14/2013	36.81	-1.34%	-0.09%	0.32%	-0.01%	-1.33%	1.30%	(1.02)	69.18%	
1/15/2013	36.58	-0.62%	0.11%	-0.35%	0.02%	-0.65%	1.30%	(0.50)	38.17%	
1/16/2013	36.74	0.44%	0.03%	-0.15%	-0.01%	0.45%	1.30%	0.35	27.01%	
1/17/2013	36.79	0.14%	0.56%	1.42%	0.92%	-0.78%	1.30%	(0.60)	45.41%	
1/18/2013	36.48	-0.84%	0.34%	0.81%	0.54%	-1.38%	1.29%	(1.07)	71.23%	
1/22/2013	36.67	0.52%	0.45%	0.19%	0.51%	0.01%	1.29%	0.01	0.65%	
1/23/2013	36.84	0.46%	0.15%	-0.65%	-0.01%	0.47%	1.29%	0.37	28.72%	
1/24/2013	36.75	-0.24%	0.00%	0.95%	0.26%	-0.50%	1.27%	(0.39)	30.64%	
1/25/2013	36.91	0.44%	0.54%	-0.13%	0.51%	-0.07%	1.27%	(0.06)	4.64%	
1/28/2013	37.16	0.68%	-0.18%	0.03%	-0.20%	0.88%	1.26%	0.69	51.20%	
1/29/2013	37.18	0.05%	0.52%	0.17%	0.55%	-0.50%	1.26%	(0.40)	30.81%	
1/30/2013	36.66	-1.40%	-0.36%	0.28%	-0.32%	-1.08%	1.26%	(0.86)	60.86%	
1/31/2013	36.53	-0.35%	-0.25%	0.38%	-0.18%	-0.18%	1.26%	(0.14)	11.22%	
2/1/2013	36.94	1.12%	1.01%	-0.01%	1.02%	0.10%	1.22%	0.08	6.69%	
2/4/2013	36.81	-0.35%	-1.15%	-0.17%	-1.23%	0.88%	1.21%	0.73	53.16%	
2/5/2013	36.63	-0.49%	1.05%	-0.45%	0.95%	-1.44%	1.21%	(1.19)	76.36%	
2/6/2013	36.69	0.16%	0.07%	0.47%	0.18%	-0.02%	1.21%	(0.01)	1.14%	
2/7/2013	36.80	0.30%	-0.14%	-0.33%	-0.24%	0.54%	1.21%	0.44	34.30%	
2/8/2013	36.55	-0.68%	0.57%	0.15%	0.60%	-1.27%	1.21%	(1.05)	70.51%	
2/11/2013	36.36	-0.52%	-0.06%	0.19%	-0.02%	-0.50%	1.22%	(0.41)	31.94%	
2/12/2013	36.20	-0.44%	0.16%	-0.35%	0.06%	-0.50%	1.22%	(0.41)	31.82%	
2/13/2013	36.49	0.80%	0.11%	-0.34%	0.00%	0.80%	1.21%	0.66	49.04%	
2/14/2013	36.38	-0.30%	0.08%	0.13%	0.10%	-0.40%	1.21%	(0.33)	26.08%	
2/15/2013	36.25	-0.36%	-0.10%	-0.46%	-0.24%	-0.11%	1.21%	(0.09)	7.47%	
2/19/2013	36.18	-0.19%	0.75%	-2.17%	0.14%	-0.33%	1.21%	(0.28)	21.86%	
2/20/2013	36.03	-0.41%	-1.24%	-0.62%	-1.45%	1.04%	1.20%	0.86	61.03%	
2/21/2013	35.84	-0.53%	-0.61%	0.21%	-0.58%	0.05%	1.20%	0.04	3.47%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
2/22/2013	36.12	0.78%	0.89%	-0.58%	0.71%	0.07%	1.20%	0.06	4.66%	
2/25/2013	35.57	-1.52%	-1.83%	0.39%	-1.76%	0.23%	1.21%	0.19	15.40%	
2/26/2013	35.45	-0.34%	0.63%	-0.11%	0.58%	-0.92%	1.20%	(0.76)	55.29%	
2/27/2013	35.80	0.99%	1.30%	-0.66%	1.09%	-0.11%	1.20%	(0.09)	7.07%	
2/28/2013	35.22	-1.62%	-0.08%	0.59%	0.05%	-1.67%	1.20%	(1.39)	83.44%	
3/1/2013	35.29	0.20%	0.23%	0.18%	0.25%	-0.06%	1.20%	(0.05)	3.67%	
3/4/2013	35.28	-0.03%	0.46%	-0.43%	0.33%	-0.36%	1.20%	(0.30)	23.46%	
3/5/2013	35.50	0.62%	0.96%	0.15%	0.97%	-0.34%	1.20%	(0.29)	22.53%	
3/6/2013	35.70	0.56%	0.14%	0.42%	0.22%	0.35%	1.20%	0.29	22.71%	
3/7/2013	35.68	-0.06%	0.19%	-0.57%	0.03%	-0.09%	1.20%	(0.07)	5.66%	
3/8/2013	35.89	0.59%	0.46%	0.03%	0.44%	0.15%	1.20%	0.12	9.86%	
3/11/2013	35.79	-0.28%	0.33%	0.28%	0.38%	-0.66%	1.20%	(0.55)	42.03%	
3/12/2013	35.61	-0.50%	-0.24%	0.24%	-0.19%	-0.31%	1.19%	(0.26)	20.52%	
3/13/2013	35.74	0.37%	0.17%	-0.48%	0.03%	0.34%	1.19%	0.28	22.31%	
3/14/2013	35.78	0.11%	0.56%	-0.60%	0.40%	-0.29%	1.19%	(0.24)	19.13%	
3/15/2013	35.71	-0.20%	-0.16%	-1.32%	-0.52%	0.33%	1.19%	0.28	21.70%	
3/18/2013	35.79	0.22%	-0.55%	-0.27%	-0.63%	0.86%	1.17%	0.73	53.41%	
3/19/2013	35.86	0.19%	-0.24%	-0.22%	-0.31%	0.50%	1.17%	0.42	32.81%	
3/20/2013	36.00	0.39%	0.67%	0.47%	0.78%	-0.38%	1.17%	(0.33)	25.54%	
3/21/2013	35.88	-0.33%	-0.83%	0.95%	-0.59%	0.26%	1.17%	0.22	17.39%	
3/22/2013	36.50	1.73%	0.72%	-0.17%	0.65%	1.08%	1.17%	0.92	64.15%	
3/25/2013	36.08	-1.15%	-0.33%	-0.42%	-0.44%	-0.71%	1.17%	(0.61)	45.46%	
3/26/2013	35.64	-1.22%	0.81%	0.32%	0.88%	-2.10%	1.17%	(1.80)	92.67%	*
3/27/2013	35.88	0.67%	-0.05%	0.04%	-0.05%	0.73%	1.18%	0.62	46.29%	
3/28/2013	37.50	4.51%	0.41%	0.52%	0.53%	3.98%	1.18%	3.38	99.92%	**
4/1/2013	37.04	-1.22%	-0.44%	-0.04%	-0.44%	-0.78%	1.21%	(0.65)	48.26%	
4/2/2013	37.44	1.08%	0.52%	0.68%	0.72%	0.36%	1.20%	0.30	23.78%	
4/3/2013	36.85	-1.58%	-1.04%	0.76%	-0.80%	-0.77%	1.20%	(0.64)	47.78%	
4/4/2013	36.85	0.00%	0.41%	0.30%	0.50%	-0.50%	1.20%	(0.41)	32.05%	
4/5/2013	36.51	-0.92%	-0.43%	-1.05%	-0.66%	-0.26%	1.19%	(0.22)	17.46%	
4/8/2013	36.40	-0.30%	0.66%	-0.53%	0.53%	-0.83%	1.19%	(0.70)	51.58%	
4/9/2013	36.45	0.14%	0.35%	0.20%	0.40%	-0.26%	1.19%	(0.22)	17.65%	
4/10/2013	36.48	0.08%	1.23%	-0.33%	1.12%	-1.04%	1.19%	(0.87)	61.65%	
4/11/2013	36.52	0.11%	0.36%	0.19%	0.40%	-0.29%	1.19%	(0.25)	19.45%	
4/12/2013	36.27	-0.68%	-0.28%	-0.14%	-0.31%	-0.38%	1.18%	(0.32)	25.07%	

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4/15/2013	36.31	0.11%	-2.30%	-0.08%	-2.23%	2.34%	1.19%	1.97	95.01%	**
4/16/2013	36.53	0.61%	1.43%	-0.43%	1.23%	-0.62%	1.19%	(0.52)	39.90%	
4/17/2013	36.10	-1.18%	-1.43%	0.35%	-1.22%	0.05%	1.19%	0.04	3.06%	
4/18/2013	35.61	-1.36%	-0.67%	-1.17%	-0.88%	-0.48%	1.19%	(0.40)	31.37%	
4/19/2013	35.94	0.93%	0.89%	0.12%	0.83%	0.10%	1.19%	0.08	6.53%	
4/22/2013	35.58	-1.00%	0.47%	-0.55%	0.30%	-1.30%	1.18%	(1.11)	73.08%	
4/23/2013	36.27	1.94%	1.04%	-0.10%	0.92%	1.02%	1.18%	0.87	61.43%	
4/24/2013	36.11	-0.44%	0.01%	-2.52%	-0.56%	0.12%	1.18%	0.10	7.82%	
4/25/2013	36.86	2.08%	0.41%	0.90%	0.56%	1.52%	1.18%	1.29	80.16%	
4/26/2013	37.39	1.44%	-0.18%	-1.12%	-0.43%	1.87%	1.18%	1.58	88.55%	
4/29/2013	37.64	0.67%	0.72%	0.26%	0.70%	-0.03%	1.17%	(0.03)	2.03%	
4/30/2013	36.20	-3.83%	0.25%	-0.33%	0.15%	-3.97%	1.17%	(3.39)	99.92%	**
5/1/2013	35.77	-1.19%	-0.93%	0.42%	-0.75%	-0.43%	1.20%	(0.36)	28.24%	
5/2/2013	36.52	2.10%	0.95%	0.68%	1.00%	1.09%	1.19%	0.91	63.86%	
5/3/2013	32.59	-10.76%	1.06%	-0.66%	0.79%	-11.55%	1.19%	(9.68)	100.00%	**
5/6/2013	32.76	0.52%	0.19%	0.19%	0.22%	0.30%	1.19%	0.25	20.06%	
5/7/2013	33.03	0.82%	0.53%	0.07%	0.49%	0.34%	1.19%	0.28	22.20%	
5/8/2013	33.70	2.03%	0.46%	1.06%	0.69%	1.34%	1.19%	1.13	73.99%	
5/9/2013	33.85	0.45%	-0.32%	1.44%	0.13%	0.32%	1.19%	0.27	20.94%	
5/10/2013	34.60	2.22%	0.43%	0.82%	0.63%	1.58%	1.19%	1.33	81.51%	
5/13/2013	33.74	-2.49%	0.01%	0.80%	0.26%	-2.74%	1.19%	(2.30)	97.80%	**
5/14/2013	33.70	-0.12%	1.04%	0.61%	1.09%	-1.21%	1.20%	(1.01)	68.66%	
5/15/2013	33.62	-0.24%	0.54%	0.24%	0.55%	-0.79%	1.20%	(0.66)	48.74%	
5/16/2013	33.23	-1.16%	-0.50%	-0.26%	-0.51%	-0.65%	1.20%	(0.55)	41.42%	
5/17/2013	32.60	-1.90%	1.03%	-0.67%	0.71%	-2.61%	1.20%	(2.18)	96.96%	**
5/20/2013	31.49	-3.40%	-0.07%	0.09%	-0.04%	-3.37%	1.21%	(2.78)	99.41%	**
5/21/2013	31.52	0.10%	0.17%	2.29%	0.81%	-0.71%	1.23%	(0.58)	43.85%	
5/22/2013	30.97	-1.74%	-0.82%	-0.92%	-0.98%	-0.76%	1.23%	(0.62)	46.55%	
5/23/2013	31.52	1.78%	-0.28%	0.24%	-0.19%	1.97%	1.23%	1.60	88.92%	
5/24/2013	31.39	-0.41%	-0.05%	-0.20%	-0.12%	-0.29%	1.24%	(0.24)	18.74%	
5/28/2013	31.54	0.48%	0.64%	0.25%	0.60%	-0.12%	1.24%	(0.10)	7.90%	
5/29/2013	31.10	-1.40%	-0.69%	-0.09%	-0.63%	-0.76%	1.23%	(0.62)	46.44%	
5/30/2013	31.25	0.48%	0.38%	0.19%	0.36%	0.12%	1.23%	0.10	7.63%	
5/31/2013	31.17	-0.26%	-1.43%	-0.02%	-1.23%	0.97%	1.23%	0.79	56.98%	
6/3/2013	30.66	-1.64%	0.60%	0.90%	0.76%	-2.40%	1.23%	(1.95)	94.74%	*

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6/4/2013	30.09	-1.86%	-0.55%	-0.86%	-0.70%	-1.16%	1.24%	(0.94)	64.99%	
6/5/2013	30.17	0.27%	-1.35%	0.63%	-0.99%	1.26%	1.24%	1.02	68.95%	
6/6/2013	30.69	1.72%	0.86%	0.30%	0.78%	0.95%	1.24%	0.77	55.54%	
6/7/2013	30.97	0.91%	1.28%	-0.09%	0.99%	-0.07%	1.23%	(0.06)	4.72%	
6/10/2013	31.29	1.03%	-0.03%	0.50%	0.10%	0.93%	1.23%	0.76	54.94%	
6/11/2013	30.80	-1.57%	-1.01%	0.72%	-0.62%	-0.95%	1.23%	(0.77)	55.85%	
6/12/2013	31.31	1.66%	-0.81%	0.47%	-0.52%	2.18%	1.23%	1.77	92.22%	*
6/13/2013	32.53	3.90%	1.49%	0.97%	1.46%	2.44%	1.24%	1.97	95.01%	**
6/14/2013	31.93	-1.84%	-0.59%	0.49%	-0.31%	-1.54%	1.25%	(1.23)	78.10%	
6/17/2013	32.06	0.41%	0.76%	0.27%	0.69%	-0.29%	1.25%	(0.23)	18.12%	
6/18/2013	31.67	-1.22%	0.78%	-1.33%	0.22%	-1.44%	1.25%	(1.15)	74.85%	
6/19/2013	31.58	-0.28%	-1.38%	-0.27%	-1.20%	0.91%	1.25%	0.73	53.30%	
6/20/2013	31.29	-0.92%	-2.49%	0.30%	-1.85%	0.93%	1.25%	0.75	54.39%	
6/21/2013	31.54	0.80%	0.27%	1.37%	0.62%	0.18%	1.25%	0.14	11.35%	
6/24/2013	31.19	-1.11%	-1.21%	0.23%	-0.85%	-0.26%	1.25%	(0.21)	16.60%	
6/25/2013	30.84	-1.12%	0.96%	-0.71%	0.49%	-1.62%	1.25%	(1.29)	80.33%	
6/26/2013	30.88	0.13%	0.98%	-0.69%	0.49%	-0.36%	1.25%	(0.29)	22.48%	
6/27/2013	30.94	0.19%	0.63%	-0.31%	0.34%	-0.15%	1.25%	(0.12)	9.57%	
6/28/2013	31.31	1.20%	-0.43%	0.07%	-0.30%	1.50%	1.25%	1.20	76.82%	
7/1/2013	31.82	1.63%	0.55%	0.34%	0.48%	1.15%	1.25%	0.92	64.05%	
7/2/2013	32.10	0.88%	-0.03%	-0.42%	-0.17%	1.05%	1.25%	0.84	59.85%	
7/3/2013	32.07	-0.09%	0.08%	-0.56%	-0.13%	0.04%	1.25%	0.03	2.52%	
7/5/2013	32.41	1.06%	1.02%	0.68%	0.92%	0.14%	1.25%	0.11	8.82%	
7/8/2013	32.36	-0.15%	0.56%	0.24%	0.46%	-0.61%	1.25%	(0.49)	37.64%	
7/9/2013	31.32	-3.21%	0.72%	-0.94%	0.19%	-3.40%	1.25%	(2.72)	99.31%	**
7/10/2013	30.70	-1.98%	0.02%	0.17%	0.05%	-2.03%	1.26%	(1.61)	89.07%	
7/11/2013	31.32	2.02%	1.37%	0.18%	0.95%	1.07%	1.27%	0.84	59.89%	
7/12/2013	31.42	0.32%	0.31%	0.02%	0.19%	0.12%	1.26%	0.10	7.87%	
7/15/2013	31.42	0.00%	0.14%	0.26%	0.16%	-0.16%	1.26%	(0.13)	10.05%	
7/16/2013	31.76	1.08%	-0.37%	-0.22%	-0.36%	1.44%	1.25%	1.15	74.77%	
7/17/2013	32.33	1.79%	0.29%	1.48%	0.68%	1.11%	1.24%	0.89	62.75%	
7/18/2013	32.40	0.22%	0.51%	0.17%	0.36%	-0.15%	1.24%	(0.12)	9.37%	
7/19/2013	32.25	-0.46%	0.16%	0.45%	0.23%	-0.69%	1.24%	(0.56)	42.38%	
7/22/2013	32.92	2.08%	0.21%	0.89%	0.40%	1.68%	1.23%	1.36	82.49%	
7/23/2013	32.78	-0.43%	-0.19%	-0.01%	-0.13%	-0.29%	1.24%	(0.24)	18.71%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
7/24/2013	32.36	-1.28%	-0.38%	-0.53%	-0.43%	-0.86%	1.24%	(0.69)	51.10%	
7/25/2013	32.25	-0.34%	0.26%	1.77%	0.75%	-1.09%	1.24%	(0.88)	61.92%	
7/26/2013	32.27	0.06%	0.08%	0.54%	0.20%	-0.13%	1.24%	(0.11)	8.64%	
7/29/2013	32.48	0.65%	-0.37%	-0.13%	-0.30%	0.95%	1.24%	0.77	55.90%	
7/30/2013	32.56	0.25%	0.04%	-0.51%	-0.15%	0.39%	1.24%	0.32	24.83%	
7/31/2013	32.79	0.71%	0.00%	0.48%	0.14%	0.57%	1.23%	0.46	35.42%	
8/1/2013	35.87	9.39%	1.26%	-0.18%	0.77%	8.63%	1.23%	7.00	100.00%	**
8/2/2013	36.20	0.92%	0.17%	-0.78%	-0.15%	1.07%	1.23%	0.87	61.25%	
8/5/2013	36.23	0.08%	-0.14%	0.44%	0.05%	0.03%	1.24%	0.03	2.10%	
8/6/2013	35.59	-1.77%	-0.57%	0.33%	-0.27%	-1.50%	1.23%	(1.21)	77.38%	
8/7/2013	35.80	0.59%	-0.35%	0.17%	-0.19%	0.78%	1.24%	0.63	46.94%	
8/8/2013	37.20	3.91%	0.41%	0.58%	0.45%	3.46%	1.24%	2.80	99.44%	**
8/9/2013	37.38	0.48%	-0.34%	0.04%	-0.20%	0.69%	1.25%	0.55	41.63%	
8/12/2013	37.12	-0.70%	-0.11%	-0.25%	-0.14%	-0.56%	1.26%	(0.44)	34.14%	
8/13/2013	36.65	-1.27%	0.30%	-0.95%	-0.10%	-1.17%	1.25%	(0.93)	64.68%	
8/14/2013	36.17	-1.31%	-0.50%	0.84%	-0.03%	-1.28%	1.25%	(1.03)	69.46%	
8/15/2013	35.92	-0.69%	-1.41%	-0.57%	-1.12%	0.43%	1.25%	0.35	27.05%	
8/16/2013	35.58	-0.95%	-0.33%	-0.55%	-0.38%	-0.57%	1.25%	(0.45)	34.81%	
8/19/2013	35.81	0.65%	-0.58%	0.59%	-0.16%	0.81%	1.25%	0.65	48.25%	
8/20/2013	36.09	0.78%	0.39%	-1.18%	-0.15%	0.94%	1.25%	0.75	54.59%	
8/21/2013	35.70	-1.09%	-0.57%	0.51%	-0.19%	-0.91%	1.25%	(0.73)	53.15%	
8/22/2013	36.01	0.88%	0.86%	0.13%	0.64%	0.25%	1.25%	0.20	15.63%	
8/23/2013	36.14	0.36%	0.41%	-1.00%	-0.06%	0.42%	1.25%	0.33	26.07%	
8/26/2013	36.46	0.89%	-0.40%	0.32%	-0.16%	1.04%	1.25%	0.84	59.57%	
8/27/2013	35.68	-2.14%	-1.59%	-1.03%	-1.42%	-0.72%	1.25%	(0.57)	43.36%	
8/28/2013	35.79	0.31%	0.29%	-0.22%	0.13%	0.18%	1.25%	0.14	11.18%	
8/29/2013	36.20	1.15%	0.21%	0.20%	0.22%	0.93%	1.24%	0.75	54.44%	
8/30/2013	35.73	-1.30%	-0.31%	-0.14%	-0.27%	-1.03%	1.24%	(0.83)	59.51%	
9/3/2013	35.34	-1.09%	0.42%	0.31%	0.39%	-1.48%	1.24%	(1.19)	76.53%	
9/4/2013	35.87	1.50%	0.83%	0.77%	0.82%	0.68%	1.24%	0.55	41.61%	
9/5/2013	35.97	0.28%	0.12%	1.17%	0.44%	-0.16%	1.24%	(0.13)	10.12%	
9/6/2013	36.00	0.08%	0.02%	0.13%	0.03%	0.06%	1.23%	0.05	3.73%	
9/9/2013	36.37	1.03%	1.01%	0.20%	0.75%	0.28%	1.23%	0.22	17.73%	
9/10/2013	36.58	0.58%	0.74%	-0.38%	0.38%	0.20%	1.23%	0.16	12.91%	
9/11/2013	36.60	0.05%	0.32%	-0.33%	0.10%	-0.05%	1.23%	(0.04)	3.06%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
9/12/2013	36.21	-1.07%	-0.31%	-0.38%	-0.34%	-0.72%	1.21%	(0.60)	44.82%	
9/13/2013	36.70	1.35%	0.27%	-0.41%	0.05%	1.30%	1.21%	1.07	71.64%	
9/16/2013	37.16	1.25%	0.57%	0.11%	0.44%	0.81%	1.21%	0.67	49.69%	
9/17/2013	37.54	1.02%	0.42%	-0.28%	0.22%	0.80%	1.21%	0.66	49.19%	
9/18/2013	37.64	0.27%	1.22%	-0.97%	0.59%	-0.32%	1.21%	(0.27)	21.04%	
9/19/2013	37.40	-0.64%	-0.17%	-0.34%	-0.24%	-0.40%	1.21%	(0.33)	25.95%	
9/20/2013	37.30	-0.27%	-0.72%	-0.03%	-0.55%	0.28%	1.21%	0.23	18.27%	
9/23/2013	36.91	-1.04%	-0.47%	0.06%	-0.33%	-0.71%	1.21%	(0.59)	44.14%	
9/24/2013	36.80	-0.30%	-0.25%	-0.13%	-0.23%	-0.07%	1.21%	(0.06)	4.39%	
9/25/2013	37.20	1.09%	-0.27%	-0.81%	-0.46%	1.55%	1.21%	1.28	79.75%	
9/26/2013	37.06	-0.38%	0.37%	0.15%	0.30%	-0.68%	1.21%	(0.56)	42.30%	
9/27/2013	36.92	-0.38%	-0.40%	0.11%	-0.27%	-0.11%	1.21%	(0.09)	7.35%	
9/30/2013	37.29	1.00%	-0.60%	1.50%	-0.01%	1.01%	1.21%	0.84	59.56%	
10/1/2013	38.30	2.71%	0.81%	-0.01%	0.57%	2.14%	1.21%	1.76	92.11%	*
10/2/2013	38.15	-0.39%	-0.05%	0.40%	0.09%	-0.48%	1.22%	(0.40)	30.75%	
10/3/2013	37.78	-0.97%	-0.90%	0.19%	-0.59%	-0.38%	1.22%	(0.31)	24.33%	
10/4/2013	38.40	1.64%	0.71%	0.16%	0.55%	1.09%	1.19%	0.92	64.12%	
10/7/2013	37.98	-1.09%	-0.85%	-0.06%	-0.64%	-0.45%	1.19%	(0.38)	29.38%	
10/8/2013	37.38	-1.58%	-1.20%	0.18%	-0.83%	-0.75%	1.19%	(0.63)	47.29%	
10/9/2013	37.59	0.56%	0.07%	1.18%	0.39%	0.17%	1.19%	0.15	11.54%	
10/10/2013	38.36	2.05%	2.20%	-0.67%	1.39%	0.66%	1.18%	0.56	42.29%	
10/11/2013	38.31	-0.13%	0.63%	0.49%	0.57%	-0.70%	1.18%	(0.59)	44.58%	
10/14/2013	38.66	0.91%	0.41%	0.66%	0.45%	0.46%	1.19%	0.39	30.37%	
10/15/2013	38.56	-0.26%	-0.71%	-0.43%	-0.60%	0.34%	1.18%	0.29	22.68%	
10/16/2013	38.95	1.01%	1.39%	0.39%	1.08%	-0.07%	1.18%	(0.06)	4.68%	
10/17/2013	38.98	0.08%	0.68%	0.52%	0.59%	-0.51%	1.17%	(0.44)	33.66%	
10/18/2013	39.24	0.67%	0.66%	-0.34%	0.38%	0.29%	1.17%	0.25	19.41%	
10/21/2013	39.06	-0.46%	0.01%	-0.11%	-0.02%	-0.44%	1.16%	(0.38)	29.47%	
10/22/2013	39.05	-0.04%	0.57%	-0.27%	0.35%	-0.39%	1.16%	(0.33)	26.09%	
10/23/2013	39.24	0.50%	-0.47%	1.99%	0.06%	0.44%	1.16%	0.38	29.67%	
10/24/2013	39.61	0.94%	0.33%	-1.55%	-0.12%	1.06%	1.15%	0.92	64.04%	
10/25/2013	39.99	0.96%	0.44%	-0.26%	0.26%	0.70%	1.15%	0.61	45.78%	
10/28/2013	40.12	0.33%	0.13%	-0.20%	0.05%	0.27%	1.16%	0.24	18.76%	
10/29/2013	39.99	-0.32%	0.56%	0.14%	0.43%	-0.75%	1.15%	(0.65)	48.65%	
10/30/2013	39.35	-1.60%	-0.48%	-0.72%	-0.50%	-1.10%	1.15%	(0.96)	66.00%	

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10/31/2013	43.21	9.81%	-0.38%	-0.41%	-0.37%	10.18%	1.15%	8.84	100.00%	**
11/1/2013	41.91	-3.01%	0.29%	-0.26%	0.13%	-3.14%	1.15%	(2.74)	99.34%	**
11/4/2013	42.51	1.43%	0.36%	0.24%	0.28%	1.15%	1.17%	0.99	67.63%	
11/5/2013	41.54	-2.28%	-0.27%	-0.53%	-0.34%	-1.94%	1.16%	(1.66)	90.24%	*
11/6/2013	41.62	0.19%	0.48%	-0.32%	0.24%	-0.05%	1.16%	(0.04)	3.38%	
11/7/2013	40.79	-1.99%	-1.30%	0.71%	-0.79%	-1.21%	1.16%	(1.04)	70.09%	
11/8/2013	40.95	0.39%	1.34%	0.14%	0.99%	-0.59%	1.16%	(0.51)	39.04%	
11/11/2013	41.55	1.47%	0.07%	0.13%	0.06%	1.41%	1.16%	1.21	77.23%	
11/12/2013	42.40	2.05%	-0.23%	-0.16%	-0.23%	2.27%	1.17%	1.95	94.76%	*
11/13/2013	42.89	1.16%	0.84%	-0.19%	0.54%	0.61%	1.17%	0.52	39.85%	
11/14/2013	43.02	0.30%	0.50%	0.07%	0.37%	-0.07%	1.17%	(0.06)	4.51%	
11/15/2013	43.30	0.65%	0.42%	-0.53%	0.17%	0.48%	1.17%	0.41	32.07%	
11/18/2013	42.69	-1.41%	-0.36%	-0.82%	-0.49%	-0.92%	1.16%	(0.79)	57.18%	
11/19/2013	41.99	-1.64%	-0.19%	0.31%	-0.08%	-1.56%	1.16%	(1.34)	81.86%	
11/20/2013	41.29	-1.67%	-0.36%	-0.74%	-0.48%	-1.19%	1.16%	(1.02)	69.29%	
11/21/2013	41.81	1.26%	0.82%	0.03%	0.60%	0.66%	1.16%	0.57	43.18%	
11/22/2013	41.76	-0.12%	0.51%	0.19%	0.40%	-0.52%	1.08%	(0.49)	37.20%	
11/25/2013	41.61	-0.36%	-0.12%	-0.38%	-0.29%	-0.07%	1.08%	(0.06)	4.93%	
11/26/2013	41.51	-0.24%	0.03%	-0.30%	-0.15%	-0.09%	1.07%	(0.08)	6.44%	
11/27/2013	42.12	1.47%	0.27%	0.20%	0.22%	1.25%	1.07%	1.17	75.57%	
11/29/2013	39.37	-6.53%	-0.07%	-0.37%	-0.25%	-6.28%	1.07%	(5.84)	100.00%	**
12/2/2013	38.87	-1.27%	-0.27%	0.47%	-0.08%	-1.19%	1.07%	(1.11)	73.03%	
12/3/2013	39.80	2.39%	-0.31%	0.77%	0.00%	2.40%	1.07%	2.23	97.33%	**
12/4/2013	38.94	-2.16%	-0.10%	-1.75%	-0.80%	-1.37%	1.07%	(1.27)	79.47%	
12/5/2013	38.92	-0.05%	-0.43%	0.23%	-0.29%	0.24%	1.07%	0.22	17.68%	
12/6/2013	38.56	-0.93%	1.13%	1.26%	1.26%	-2.19%	1.07%	(2.04)	95.72%	**
12/9/2013	38.43	-0.34%	0.19%	-1.07%	-0.32%	-0.01%	1.07%	(0.01)	0.96%	
12/10/2013	38.00	-1.12%	-0.32%	-0.38%	-0.44%	-0.68%	1.07%	(0.63)	47.31%	
12/11/2013	36.80	-3.16%	-1.12%	-1.20%	-1.35%	-1.81%	1.07%	(1.69)	90.68%	*
12/12/2013	36.03	-2.09%	-0.35%	-0.12%	-0.36%	-1.73%	1.07%	(1.61)	89.10%	
12/13/2013	36.02	-0.03%	-0.01%	0.03%	-0.05%	0.02%	1.07%	0.02	1.81%	
12/16/2013	36.00	-0.06%	0.63%	0.22%	0.50%	-0.55%	1.07%	(0.52)	39.35%	
12/17/2013	35.95	-0.14%	-0.31%	0.52%	-0.09%	-0.05%	1.07%	(0.04)	3.56%	
12/18/2013	36.45	1.39%	1.67%	0.21%	1.27%	0.12%	1.07%	0.11	9.01%	
12/19/2013	36.63	0.49%	-0.04%	-0.51%	-0.28%	0.78%	1.07%	0.72	52.89%	

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12/20/2013	35.94	-1.88%	0.48%	0.05%	0.32%	-2.21%	1.07%	(2.05)	95.87%	**
12/23/2013	36.08	0.39%	0.55%	0.31%	0.47%	-0.08%	1.07%	(0.07)	5.88%	
12/24/2013	36.12	0.11%	0.30%	-0.22%	0.09%	0.02%	1.07%	0.02	1.83%	
12/26/2013	35.85	-0.75%	0.47%	-0.10%	0.26%	-1.01%	1.07%	(0.94)	65.03%	
12/27/2013	36.13	0.78%	-0.01%	-0.23%	-0.16%	0.94%	1.07%	0.87	61.54%	
12/30/2013	36.47	0.94%	-0.01%	-0.21%	-0.15%	1.09%	1.07%	1.01	68.73%	
12/31/2013	36.60	0.36%	0.40%	-0.11%	0.20%	0.16%	1.07%	0.14	11.48%	
1/2/2014	36.25	-0.96%	-0.87%	0.25%	-0.61%	-0.34%	1.07%	(0.32)	24.90%	
1/3/2014	36.29	0.11%	-0.03%	0.95%	0.28%	-0.17%	1.07%	(0.16)	12.32%	
1/6/2014	35.94	-0.96%	-0.25%	1.87%	0.46%	-1.42%	1.07%	(1.32)	81.35%	
1/7/2014	35.78	-0.45%	0.61%	0.63%	0.64%	-1.08%	1.07%	(1.01)	68.46%	
1/8/2014	35.75	-0.08%	0.01%	1.42%	0.48%	-0.57%	1.07%	(0.53)	40.25%	
1/9/2014	36.36	1.71%	0.03%	-0.97%	-0.40%	2.10%	1.07%	1.96	94.86%	*
1/10/2014	37.35	2.72%	0.23%	0.85%	0.43%	2.29%	1.07%	2.13	96.57%	**
1/13/2014	37.04	-0.83%	-1.25%	0.18%	-0.92%	0.09%	1.07%	0.09	6.86%	
1/14/2014	37.84	2.16%	1.08%	-0.32%	0.63%	1.53%	1.07%	1.42	84.38%	
1/15/2014	38.66	2.17%	0.52%	-0.35%	0.20%	1.97%	1.07%	1.83	93.20%	*
1/16/2014	37.97	-1.78%	-0.13%	0.41%	0.00%	-1.78%	1.07%	(1.66)	90.13%	*
1/17/2014	37.32	-1.71%	-0.39%	-0.11%	-0.39%	-1.32%	1.07%	(1.23)	78.02%	
1/21/2014	37.11	-0.56%	0.28%	0.33%	0.28%	-0.84%	1.07%	(0.78)	56.36%	
1/22/2014	36.77	-0.92%	0.07%	-0.74%	-0.29%	-0.63%	1.07%	(0.59)	44.21%	
1/23/2014	35.91	-2.34%	-0.89%	-0.28%	-0.83%	-1.51%	1.07%	(1.41)	83.90%	
1/24/2014	34.94	-2.70%	-2.09%	-0.50%	-1.80%	-0.90%	1.07%	(0.83)	59.54%	
1/27/2014	34.37	-1.63%	-0.48%	-0.63%	-0.66%	-0.98%	1.07%	(0.91)	63.50%	
1/28/2014	34.84	1.37%	0.61%	-0.18%	0.33%	1.04%	1.07%	0.96	66.40%	
1/29/2014	34.53	-0.89%	-1.01%	-0.30%	-0.93%	0.04%	1.07%	0.03	2.70%	
1/30/2014	34.96	1.25%	1.13%	0.17%	0.85%	0.39%	1.07%	0.36	28.44%	
1/31/2014	34.94	-0.06%	-0.65%	-0.15%	-0.60%	0.54%	1.07%	0.50	38.52%	
2/3/2014	33.80	-3.26%	-2.28%	-1.03%	-2.15%	-1.11%	1.07%	(1.03)	69.73%	
2/4/2014	34.37	1.69%	0.77%	-1.44%	-0.03%	1.71%	1.07%	1.59	88.78%	
2/5/2014	34.95	1.69%	-0.17%	1.21%	0.27%	1.42%	1.07%	1.32	81.17%	
2/6/2014	34.45	-1.43%	1.30%	-1.07%	0.51%	-1.94%	1.07%	(1.80)	92.73%	*
2/7/2014	34.65	0.58%	1.33%	0.48%	1.12%	-0.54%	1.07%	(0.50)	38.20%	
2/10/2014	34.45	-0.58%	0.16%	0.33%	0.19%	-0.76%	1.07%	(0.71)	52.21%	
2/11/2014	35.18	2.12%	1.11%	-0.16%	0.71%	1.41%	1.07%	1.31	80.87%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
2/12/2014	35.92	2.10%	0.02%	0.36%	0.09%	2.01%	1.07%	1.87	93.74%	*
2/13/2014	36.03	0.31%	0.59%	0.08%	0.41%	-0.11%	1.07%	(0.10)	7.85%	
2/14/2014	36.02	-0.03%	0.49%	0.27%	0.41%	-0.44%	1.07%	(0.41)	31.60%	
2/18/2014	36.24	0.60%	0.13%	-0.30%	-0.07%	0.67%	1.07%	0.62	46.64%	
2/19/2014	35.70	-1.48%	-0.65%	-0.03%	-0.55%	-0.92%	1.07%	(0.86)	60.93%	
2/20/2014	36.45	2.10%	0.62%	0.74%	0.69%	1.41%	1.07%	1.32	81.07%	
2/21/2014	35.73	-1.98%	-0.18%	0.01%	-0.19%	-1.79%	1.07%	(1.66)	90.26%	*
2/24/2014	35.98	0.70%	0.62%	-0.03%	0.39%	0.31%	1.07%	0.28	22.41%	
2/25/2014	35.50	-1.33%	-0.13%	0.07%	-0.13%	-1.20%	1.07%	(1.12)	73.61%	
2/26/2014	35.60	0.28%	0.02%	0.29%	0.07%	0.21%	1.07%	0.20	15.64%	
2/27/2014	37.24	4.61%	0.51%	0.08%	0.35%	4.25%	1.07%	3.96	99.99%	**
2/28/2014	37.14	-0.27%	0.28%	0.19%	0.22%	-0.49%	1.07%	(0.46)	35.09%	
3/3/2014	36.24	-2.42%	-0.73%	-0.04%	-0.62%	-1.80%	1.07%	(1.68)	90.54%	*
3/4/2014	37.23	2.73%	1.53%	0.06%	1.11%	1.62%	1.07%	1.51	86.79%	
3/5/2014	36.22	-2.71%	0.01%	0.27%	0.05%	-2.77%	1.07%	(2.57)	98.93%	**
3/6/2014	36.34	0.33%	0.19%	-0.04%	0.07%	0.26%	1.07%	0.24	19.22%	
3/7/2014	36.84	1.38%	0.06%	-0.07%	-0.04%	1.41%	1.07%	1.32	81.04%	
3/10/2014	36.79	-0.14%	-0.04%	-0.05%	-0.11%	-0.03%	1.07%	(0.03)	2.21%	
3/11/2014	35.82	-2.64%	-0.50%	0.26%	-0.34%	-2.30%	1.07%	(2.14)	96.65%	**
3/12/2014	35.04	-2.18%	0.06%	-0.56%	-0.23%	-1.95%	1.07%	(1.81)	92.90%	*
3/13/2014	34.40	-1.83%	-1.16%	-0.56%	-1.13%	-0.69%	1.07%	(0.64)	48.00%	
3/14/2014	34.19	-0.61%	-0.28%	0.25%	-0.17%	-0.44%	1.07%	(0.41)	31.72%	
3/17/2014	35.00	2.37%	0.96%	-0.26%	0.56%	1.81%	1.07%	1.68	90.60%	*
3/18/2014	36.71	4.89%	0.72%	0.42%	0.64%	4.24%	1.07%	3.95	99.99%	**
3/19/2014	36.47	-0.65%	-0.61%	0.42%	-0.36%	-0.30%	1.07%	(0.28)	21.66%	
3/20/2014	36.33	-0.38%	0.61%	-0.99%	0.02%	-0.41%	1.07%	(0.38)	29.39%	
3/21/2014	36.00	-0.91%	-0.29%	-1.06%	-0.68%	-0.23%	1.07%	(0.22)	17.12%	
3/24/2014	35.33	-1.86%	-0.49%	-0.59%	-0.64%	-1.22%	1.07%	(1.13)	74.19%	
3/25/2014	35.02	-0.88%	0.45%	0.91%	0.62%	-1.50%	1.07%	(1.40)	83.58%	
3/26/2014	34.77	-0.71%	-0.70%	0.81%	-0.27%	-0.44%	1.07%	(0.41)	31.66%	
3/27/2014	34.66	-0.32%	-0.17%	-0.38%	-0.33%	0.01%	1.07%	0.01	1.06%	
3/28/2014	35.15	1.41%	0.47%	0.55%	0.50%	0.91%	1.07%	0.85	60.35%	
3/31/2014	35.81	1.88%	0.80%	1.20%	0.99%	0.89%	1.07%	0.83	59.00%	
4/1/2014	35.86	0.14%	0.71%	-0.08%	0.44%	-0.30%	1.07%	(0.28)	22.25%	
4/2/2014	35.80	-0.17%	0.30%	0.13%	0.22%	-0.38%	1.07%	(0.36)	27.86%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
4/3/2014	36.14	0.95%	-0.11%	0.44%	0.03%	0.92%	1.07%	0.86	60.90%	
4/4/2014	35.11	-2.85%	-1.25%	-0.38%	-1.13%	-1.72%	1.07%	(1.60)	88.82%	
4/7/2014	34.27	-2.39%	-1.07%	-0.15%	-0.92%	-1.48%	1.07%	(1.37)	82.93%	
4/8/2014	33.79	-1.40%	0.41%	-1.47%	-0.31%	-1.09%	1.07%	(1.02)	68.96%	
4/9/2014	34.18	1.15%	1.10%	0.47%	0.94%	0.21%	1.07%	0.20	15.57%	
4/10/2014	33.42	-2.22%	-2.09%	-0.83%	-1.93%	-0.29%	1.07%	(0.27)	21.38%	
4/11/2014	32.93	-1.47%	-0.94%	-0.64%	-1.00%	-0.47%	1.07%	(0.43)	33.48%	
4/14/2014	32.79	-0.43%	0.82%	0.11%	0.60%	-1.02%	1.07%	(0.95)	65.83%	
4/15/2014	33.68	2.71%	0.68%	-0.48%	0.27%	2.45%	1.07%	2.28	97.63%	**
4/16/2014	33.92	0.71%	1.05%	-0.71%	0.46%	0.25%	1.07%	0.24	18.68%	
4/17/2014	33.60	-0.94%	0.14%	0.24%	0.14%	-1.08%	1.07%	(1.01)	68.43%	
4/21/2014	33.92	0.95%	0.38%	-0.02%	0.22%	0.73%	1.07%	0.68	50.52%	
4/22/2014	33.82	-0.29%	0.41%	-0.73%	-0.03%	-0.27%	1.07%	(0.25)	19.50%	
4/23/2014	33.52	-0.89%	-0.21%	-0.45%	-0.38%	-0.50%	1.07%	(0.47)	36.07%	
4/24/2014	33.36	-0.48%	0.17%	-0.04%	0.06%	-0.54%	1.07%	(0.50)	38.16%	
4/25/2014	32.23	-3.39%	-0.81%	-0.05%	-0.68%	-2.70%	1.07%	(2.52)	98.75%	**
4/28/2014	32.36	0.40%	0.33%	0.34%	0.32%	0.09%	1.07%	0.08	6.53%	
4/29/2014	32.70	1.05%	0.48%	-1.04%	-0.09%	1.14%	1.07%	1.06	71.11%	
4/30/2014	32.78	0.24%	0.30%	-0.35%	0.04%	0.21%	1.07%	0.19	15.35%	
5/1/2014	33.48	2.14%	-0.01%	0.43%	0.10%	2.04%	1.07%	1.90	94.09%	*
5/2/2014	33.62	0.42%	-0.13%	0.29%	-0.05%	0.47%	1.07%	0.44	33.69%	
5/5/2014	33.20	-1.25%	0.19%	0.50%	0.28%	-1.53%	1.07%	(1.42)	84.32%	
5/6/2014	32.85	-1.05%	-0.90%	0.50%	-0.54%	-0.51%	1.07%	(0.48)	36.75%	
5/7/2014	31.04	-5.51%	0.60%	-0.65%	0.15%	-5.66%	1.07%	(5.26)	100.00%	**
5/8/2014	30.89	-0.48%	-0.11%	0.07%	-0.12%	-0.37%	1.07%	(0.34)	26.66%	
5/9/2014	31.65	2.46%	0.17%	0.64%	0.31%	2.15%	1.07%	2.00	95.35%	**
5/12/2014	32.38	2.31%	0.97%	0.62%	0.90%	1.41%	1.07%	1.31	80.77%	
5/13/2014	32.16	-0.68%	0.07%	-0.41%	-0.16%	-0.52%	1.07%	(0.48)	36.84%	
5/14/2014	31.57	-1.83%	-0.45%	-0.01%	-0.40%	-1.44%	1.07%	(1.34)	81.77%	
5/15/2014	31.19	-1.20%	-0.92%	-0.28%	-0.85%	-0.35%	1.07%	(0.33)	25.75%	
5/16/2014	31.27	0.26%	0.38%	0.40%	0.37%	-0.12%	1.07%	(0.11)	8.55%	
5/19/2014	31.50	0.72%	0.39%	-0.10%	0.20%	0.52%	1.07%	0.49	37.27%	
5/20/2014	31.45	-0.14%	-0.65%	-0.79%	-0.84%	0.70%	1.07%	0.65	48.31%	
5/21/2014	31.79	1.08%	0.83%	-0.43%	0.40%	0.69%	1.07%	0.64	47.61%	
5/22/2014	32.02	0.72%	0.25%	-0.74%	-0.15%	0.87%	1.07%	0.81	58.24%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
5/23/2014	32.25	0.72%	0.43%	0.00%	0.26%	0.46%	1.07%	0.42	32.86%	
5/27/2014	32.57	0.99%	0.60%	-0.04%	0.38%	0.62%	1.07%	0.57	43.27%	
5/28/2014	32.65	0.25%	-0.10%	0.43%	0.03%	0.21%	1.07%	0.20	15.55%	
5/29/2014	33.13	1.47%	0.55%	-0.45%	0.18%	1.29%	1.07%	1.20	76.78%	
5/30/2014	33.12	-0.03%	0.19%	0.01%	0.08%	-0.11%	1.07%	(0.10)	8.33%	
6/2/2014	33.02	-0.30%	0.08%	-0.19%	-0.07%	-0.23%	1.07%	(0.22)	17.23%	
6/3/2014	33.07	0.15%	-0.03%	-0.03%	-0.09%	0.25%	1.07%	0.23	18.05%	
6/4/2014	33.55	1.45%	0.21%	1.81%	0.78%	0.67%	1.07%	0.63	46.88%	
6/5/2014	34.37	2.44%	0.66%	-1.26%	-0.04%	2.49%	1.07%	2.31	97.84%	**
6/6/2014	34.07	-0.87%	0.48%	-0.06%	0.28%	-1.15%	1.07%	(1.07)	71.39%	
6/9/2014	34.06	-0.03%	0.10%	-0.50%	-0.17%	0.14%	1.07%	0.13	10.61%	
6/10/2014	33.90	-0.47%	-0.02%	-0.79%	-0.37%	-0.10%	1.07%	(0.09)	7.10%	
6/11/2014	33.62	-0.83%	-0.34%	-0.50%	-0.50%	-0.32%	1.07%	(0.30)	23.55%	
6/12/2014	33.49	-0.39%	-0.68%	0.00%	-0.57%	0.18%	1.07%	0.17	13.28%	
6/13/2014	33.46	-0.09%	0.31%	-0.73%	-0.10%	0.01%	1.07%	0.01	0.66%	
6/16/2014	33.36	-0.30%	0.08%	-0.19%	-0.07%	-0.23%	1.07%	(0.22)	17.04%	
6/17/2014	33.64	0.84%	0.22%	1.15%	0.54%	0.30%	1.07%	0.28	21.98%	
6/18/2014	34.06	1.25%	0.77%	1.43%	1.06%	0.19%	1.07%	0.18	14.12%	
6/19/2014	34.48	1.23%	0.14%	0.75%	0.33%	0.90%	1.07%	0.84	59.82%	
6/20/2014	34.55	0.20%	0.17%	-0.09%	0.04%	0.17%	1.07%	0.15	12.22%	
6/23/2014	34.00	-1.59%	-0.01%	-0.04%	-0.08%	-1.51%	1.07%	(1.40)	83.86%	
6/24/2014	34.20	0.59%	-0.63%	0.42%	-0.37%	0.96%	1.07%	0.90	62.88%	
6/25/2014	34.70	1.46%	0.49%	0.19%	0.38%	1.08%	1.07%	1.01	68.41%	
6/26/2014	34.45	-0.72%	-0.10%	0.33%	-0.01%	-0.71%	1.07%	(0.66)	49.15%	
6/27/2014	34.93	1.39%	0.20%	-0.45%	-0.08%	1.47%	1.07%	1.37	82.81%	
6/30/2014	34.86	-0.20%	-0.03%	-0.60%	-0.31%	0.11%	1.07%	0.10	7.98%	
7/1/2014	35.53	1.92%	0.69%	0.38%	0.60%	1.32%	1.07%	1.23	78.10%	
7/2/2014	34.54	-2.79%	0.07%	0.11%	0.04%	-2.82%	1.07%	(2.63)	99.08%	**
7/3/2014	34.99	1.30%	0.55%	0.01%	0.35%	0.95%	1.07%	0.88	62.20%	
7/7/2014	34.22	-2.20%	-0.39%	-0.57%	-0.56%	-1.64%	1.07%	(1.52)	87.11%	
7/8/2014	33.95	-0.79%	-0.68%	0.32%	-0.44%	-0.35%	1.07%	(0.32)	25.33%	
7/9/2014	33.90	-0.15%	0.47%	-0.52%	0.10%	-0.25%	1.07%	(0.23)	18.09%	
7/10/2014	33.49	-1.21%	-0.41%	0.18%	-0.30%	-0.91%	1.07%	(0.85)	60.31%	
7/11/2014	33.75	0.78%	0.16%	0.51%	0.25%	0.53%	1.07%	0.49	37.50%	
7/14/2014	33.88	0.39%	0.48%	-0.67%	0.05%	0.34%	1.07%	0.31	24.46%	

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7/15/2014	33.28	-1.77%	-0.19%	-0.80%	-0.50%	-1.27%	1.07%	(1.18)	76.01%	
7/16/2014	32.87	-1.23%	0.43%	-1.25%	-0.21%	-1.03%	1.07%	(0.95)	65.94%	
7/17/2014	32.56	-0.94%	-1.17%	-1.12%	-1.36%	0.41%	1.07%	0.39	29.96%	
7/18/2014	33.00	1.35%	1.03%	0.34%	0.84%	0.51%	1.07%	0.48	36.61%	
7/21/2014	32.68	-0.97%	-0.23%	0.01%	-0.23%	-0.74%	1.07%	(0.69)	51.02%	
7/22/2014	32.97	0.89%	0.50%	0.17%	0.38%	0.51%	1.07%	0.47	36.16%	
7/23/2014	32.68	-0.88%	0.18%	0.65%	0.32%	-1.20%	1.07%	(1.12)	73.42%	
7/24/2014	32.55	-0.40%	0.05%	0.13%	0.03%	-0.43%	1.07%	(0.40)	30.89%	
7/25/2014	32.13	-1.29%	-0.48%	-0.02%	-0.43%	-0.86%	1.07%	(0.80)	57.70%	
7/28/2014	32.28	0.47%	0.03%	-0.08%	-0.06%	0.53%	1.07%	0.49	37.87%	
7/29/2014	31.33	-2.94%	-0.45%	-0.17%	-0.46%	-2.49%	1.07%	(2.31)	97.85%	**
7/30/2014	31.40	0.22%	0.02%	1.11%	0.38%	-0.15%	1.07%	(0.14)	11.44%	
7/31/2014	32.50	3.50%	-1.99%	-0.23%	-1.63%	5.13%	1.07%	4.78	100.00%	**
8/1/2014	32.25	-0.77%	-0.29%	-0.12%	-0.32%	-0.45%	1.07%	(0.42)	32.60%	
8/4/2014	32.83	1.80%	0.72%	0.74%	0.76%	1.04%	1.07%	0.97	66.52%	
8/5/2014	33.06	0.70%	-0.96%	0.43%	-0.61%	1.31%	1.07%	1.22	77.62%	
8/6/2014	32.57	-1.48%	0.03%	-0.81%	-0.34%	-1.14%	1.07%	(1.06)	71.09%	
8/7/2014	22.74	-30.18%	-0.53%	-1.07%	-0.86%	-29.32%	1.07%	(27.28)	100.00%	**
8/8/2014	23.27	2.33%	1.16%	0.10%	0.84%	1.49%	1.07%	1.38	83.26%	
8/11/2014	23.04	-0.99%	0.29%	-0.59%	-0.06%	-0.93%	1.07%	(0.86)	61.04%	
8/12/2014	23.20	0.69%	-0.16%	0.25%	-0.08%	0.78%	1.07%	0.72	52.87%	
8/13/2014	23.33	0.56%	0.70%	0.91%	0.81%	-0.25%	1.07%	(0.23)	18.13%	
8/14/2014	23.42	0.36%	0.44%	-0.24%	0.18%	0.19%	1.07%	0.17	13.66%	
8/15/2014	23.74	1.39%	0.01%	-0.69%	-0.32%	1.70%	1.07%	1.58	88.56%	
8/18/2014	23.85	0.46%	0.86%	-0.05%	0.56%	-0.10%	1.07%	(0.09)	7.51%	
8/19/2014	24.30	1.89%	0.52%	-0.07%	0.30%	1.58%	1.07%	1.47	85.83%	
8/20/2014	24.61	1.26%	0.25%	-0.33%	0.01%	1.25%	1.07%	1.16	75.38%	
8/21/2014	24.33	-1.12%	0.30%	-0.17%	0.10%	-1.22%	1.07%	(1.13)	74.10%	
8/22/2014	24.36	0.12%	-0.19%	-0.60%	-0.42%	0.55%	1.07%	0.51	38.79%	
8/25/2014	24.27	-0.39%	0.48%	-0.26%	0.20%	-0.59%	1.07%	(0.55)	41.93%	
8/26/2014	24.70	1.79%	0.11%	-0.17%	-0.04%	1.84%	1.07%	1.71	91.11%	*
8/27/2014	24.65	-0.20%	0.03%	-0.43%	-0.20%	0.00%	1.07%	(0.00)	0.14%	
8/28/2014	24.74	0.37%	-0.16%	-0.16%	-0.23%	0.60%	1.07%	0.56	42.28%	
8/29/2014	25.00	1.05%	0.34%	0.90%	0.54%	0.51%	1.07%	0.48	36.69%	
9/2/2014	24.90	-0.40%	-0.05%	-0.17%	-0.16%	-0.24%	1.07%	(0.22)	17.78%	

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
9/3/2014	25.25	1.41%	-0.06%	0.09%	-0.07%	1.47%	1.07%	1.37	82.83%	
9/4/2014	25.16	-0.36%	-0.15%	-0.39%	-0.32%	-0.04%	1.07%	(0.04)	2.98%	
9/5/2014	25.42	1.03%	0.51%	-0.36%	0.18%	0.85%	1.07%	0.79	57.02%	
9/8/2014	25.22	-0.81%	-0.29%	0.83%	0.04%	-0.84%	1.07%	(0.78)	56.67%	
9/9/2014	25.36	0.56%	-0.65%	1.04%	-0.15%	0.71%	1.07%	0.66	49.02%	
9/10/2014	25.72	1.44%	0.37%	0.22%	0.31%	1.13%	1.07%	1.05	70.71%	
9/11/2014	25.94	0.84%	0.12%	-0.18%	-0.04%	0.87%	1.07%	0.81	58.35%	
9/12/2014	26.02	0.33%	-0.59%	-0.66%	-0.75%	1.08%	1.07%	1.00	68.40%	
9/15/2014	26.01	-0.04%	-0.07%	-0.46%	-0.28%	0.24%	1.07%	0.23	17.99%	
9/16/2014	26.28	1.04%	0.75%	0.38%	0.64%	0.39%	1.07%	0.37	28.53%	
9/17/2014	26.15	-0.49%	0.13%	-0.26%	-0.06%	-0.44%	1.07%	(0.41)	31.45%	
9/18/2014	26.40	0.96%	0.50%	0.35%	0.45%	0.51%	1.07%	0.47	36.28%	
9/19/2014	26.14	-0.98%	-0.05%	-0.51%	-0.29%	-0.70%	1.07%	(0.65)	48.33%	
9/22/2014	27.74	6.12%	-0.80%	0.32%	-0.54%	6.66%	1.07%	6.19	100.00%	**
9/23/2014	26.61	-4.07%	-0.57%	-1.58%	-1.08%	-3.00%	1.07%	(2.79)	99.43%	**
9/24/2014	26.86	0.92%	0.79%	-0.83%	0.21%	0.71%	1.07%	0.66	48.83%	
9/25/2014	26.50	-1.32%	-1.62%	-0.05%	-1.29%	-0.04%	1.07%	(0.03)	2.70%	
9/26/2014	26.83	1.23%	0.88%	-0.10%	0.56%	0.67%	1.07%	0.62	46.58%	
9/29/2014	27.41	2.16%	-0.25%	-0.65%	-0.49%	2.65%	1.07%	2.46	98.56%	**
9/30/2014	26.73	-2.46%	-0.27%	-0.84%	-0.58%	-1.89%	1.07%	(1.75)	91.94%	*
10/1/2014	26.50	-0.86%	-1.32%	1.85%	-0.34%	-0.52%	1.07%	(0.48)	36.82%	
10/2/2014	26.66	0.60%	0.01%	0.70%	0.21%	0.39%	1.07%	0.36	28.45%	
10/3/2014	26.99	1.22%	1.12%	1.37%	1.29%	-0.08%	1.07%	(0.07)	5.59%	
10/6/2014	27.10	0.41%	-0.15%	0.36%	-0.04%	0.45%	1.07%	0.41	32.09%	
10/7/2014	26.49	-2.23%	-1.51%	-0.07%	-1.21%	-1.02%	1.07%	(0.95)	65.65%	
10/8/2014	26.89	1.51%	1.78%	0.82%	1.58%	-0.07%	1.07%	(0.06)	5.13%	
10/9/2014	26.32	-2.12%	-2.06%	-0.54%	-1.80%	-0.32%	1.07%	(0.30)	23.28%	
10/10/2014	26.04	-1.08%	-1.14%	1.03%	-0.52%	-0.56%	1.07%	(0.53)	40.00%	
10/13/2014	26.05	0.06%	-1.65%	0.25%	-1.19%	1.25%	1.07%	1.16	75.45%	
10/14/2014	26.03	-0.08%	0.16%	-0.17%	0.00%	-0.07%	1.07%	(0.07)	5.48%	
10/15/2014	25.78	-0.98%	-0.80%	-1.47%	-1.21%	0.23%	1.07%	0.22	17.09%	
10/16/2014	25.49	-1.11%	0.02%	-0.91%	-0.39%	-0.72%	1.07%	(0.67)	49.62%	
10/17/2014	25.71	0.84%	1.29%	-0.65%	0.66%	0.19%	1.07%	0.17	13.68%	
10/20/2014	26.26	2.16%	0.92%	1.52%	1.20%	0.96%	1.07%	0.89	62.81%	
10/21/2014	26.51	0.95%	1.96%	0.40%	1.56%	-0.60%	1.07%	(0.56)	42.50%	

Thoratec Corp. Actual vs. Predicted Returns

Date	Closing Price	Actual Return	Market Return	Orthogonalized Industry Return	Predicted Return	Residual Return	Standard Error	t-Stat	Confidence Level	Statistically Significant ^[1]
10/22/2014	26.02	-1.85%	-0.72%	0.39%	-0.45%	-1.40%	1.07%	(1.30)	80.66%	
10/23/2014	26.36	1.29%	1.23%	0.48%	1.04%	0.25%	1.07%	0.23	18.02%	
10/24/2014	26.59	0.89%	0.71%	1.60%	1.07%	-0.18%	1.07%	(0.17)	13.26%	
10/27/2014	26.29	-1.13%	-0.15%	0.07%	-0.14%	-0.99%	1.07%	(0.92)	64.04%	
10/28/2014	26.28	-0.04%	1.19%	-0.32%	0.71%	-0.75%	1.07%	(0.70)	51.43%	
10/29/2014	26.13	-0.57%	-0.13%	0.71%	0.11%	-0.68%	1.07%	(0.64)	47.43%	
10/30/2014	26.40	1.03%	0.63%	0.42%	0.57%	0.46%	1.07%	0.43	33.26%	
10/31/2014	27.18	2.95%	1.17%	-0.14%	0.77%	2.19%	1.07%	2.04	95.71%	**
11/3/2014	27.21	0.11%	-0.01%	-0.16%	-0.13%	0.24%	1.07%	0.22	17.52%	
11/4/2014	27.18	-0.11%	-0.28%	0.01%	-0.27%	0.15%	1.07%	0.14	11.44%	

[1] "**" and "*" denote statistical significance at the 95% and 90% confidence levels, respectively.

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Recidual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
5/11/2011	5/11/2010	5/10/2011	253	0.1156	0.1085	0.0269	2.132	-0.10%	0.906	5.53	0.318	1.47
5/12/2011	5/12/2010	5/11/2011	253	0.1179	0.1108	0.0269	2.132	-0.10%	0.905	5.59	0.318	1.46
5/13/2011	5/13/2010	5/12/2011	253	0.1175	0.1075	0.0268	2.144	-0.11%	0.903	5.51	0.318	1.42
5/16/2011	5/16/2010	5/15/2011	252	0.1102	0.1073	0.0269	2.124	-0.12%	0.890	5.37	0.307	1.42
5/17/2011	5/17/2010	5/16/2011	253	0.1102	0.1031	0.0268	2.124	-0.11%	0.889	5.38	0.311	1.43
5/18/2011	5/18/2010	5/17/2011	253	0.1103	0.1032	0.0267	2.129	-0.13%	0.889	5.40	0.299	1.38
5/19/2011	5/19/2010	5/18/2011	253	0.1114	0.1043	0.0268	2.130	-0.11%	0.896	5.41	0.315	1.45
5/20/2011	5/20/2010	5/19/2011	253	0.1117	0.1036	0.0269	2.118	-0.11%	0.897	5.40	0.304	1.39
5/23/2011	5/23/2010	5/22/2011	252	0.1107	0.0976	0.0269	2.120	-0.10%	0.896	5.20	0.316	1.44
5/24/2011	5/24/2010	5/23/2011	253	0.1060	0.0988	0.0269	2.120	-0.10%	0.898	5.25	0.317	1.45
5/25/2011	5/25/2010	5/24/2011	253	0.1099	0.1028	0.0267	2.123	-0.13%	0.927	5.42	0.269	1.23
5/26/2011	5/26/2010	5/25/2011	253	0.1095	0.1024	0.0267	2.124	-0.12%	0.927	5.42	0.257	1.17
5/27/2011	5/27/2010	5/26/2011	253	0.1097	0.1026	0.0267	2.121	-0.12%	0.928	5.42	0.259	1.17
5/31/2011	5/31/2010	5/30/2011	252	0.1009	0.0936	0.0267	2.129	-0.13%	0.899	5.12	0.287	1.29
6/1/2011	6/1/2010	5/31/2011	253	0.1005	0.0933	0.0267	2.128	-0.14%	0.895	5.12	0.287	1.30
6/2/2011	6/2/2010	6/1/2011	253	0.1017	0.0945	0.0267	2.116	-0.14%	0.897	5.16	0.285	1.29
6/3/2011	6/3/2010	6/2/2011	253	0.0925	0.0852	0.0266	2.104	-0.15%	0.855	4.87	0.288	1.31
6/6/2011	6/6/2010	6/5/2011	252	0.0899	0.0826	0.0265	2.109	-0.14%	0.861	4.78	0.287	1.31
6/7/2011	6/7/2010	6/6/2011	253	0.0914	0.0842	0.0265	2.108	-0.15%	0.867	4.84	0.286	1.31
6/8/2011	6/8/2010	6/7/2011	253	0.0921	0.0849	0.0265	2.107	-0.15%	0.875	4.86	0.285	1.31
6/9/2011	6/9/2010	6/8/2011	253	0.0932	0.0859	0.0265	2.104	-0.15%	0.885	4.91	0.274	1.25
6/10/2011	6/10/2010	6/9/2011	253	0.0942	0.0870	0.0265	2.107	-0.15%	0.890	4.95	0.273	1.25
6/13/2011	6/13/2010	6/12/2011	252	0.0924	0.0851	0.0265	2.105	-0.17%	0.890	4.86	0.288	1.31
6/14/2011	6/14/2010	6/13/2011	253	0.0923	0.0851	0.0265	2.103	-0.18%	0.889	4.87	0.289	1.32
6/15/2011	6/15/2010	6/14/2011	253	0.0928	0.0855	0.0265	2.106	-0.17%	0.886	4.87	0.303	1.38
6/16/2011	6/16/2010	6/15/2011	253	0.0942	0.0869	0.0265	2.091	-0.18%	0.899	4.91	0.301	1.36
6/17/2011	6/17/2010	6/16/2011	253	0.0950	0.0877	0.0263	2.093	-0.20%	0.902	4.97	0.275	1.25
6/20/2011	6/20/2010	6/19/2011	252	0.0951	0.0879	0.0263	2.094	-0.19%	0.902	4.97	0.271	1.23
6/21/2011	6/21/2010	6/20/2011	253	0.0964	0.0892	0.0263	2.091	-0.18%	0.909	5.00	0.281	1.28
6/22/2011	6/22/2010	6/21/2011	253	0.0973	0.0900	0.0263	2.088	-0.18%	0.910	5.03	0.281	1.28
6/23/2011	6/23/2010	6/22/2011	253	0.0924	0.0851	0.0262	2.087	-0.17%	0.886	4.88	0.278	1.27
6/24/2011	6/24/2010	6/23/2011	253	0.0933	0.0861	0.0262	2.088	-0.18%	0.890	4.90	0.288	1.31
6/27/2011	6/27/2010	6/26/2011	252	0.0902	0.0829	0.0263	2.086	-0.17%	0.876	4.79	0.291	1.32
6/28/2011	6/28/2010	6/27/2011	253	0.0903	0.0831	0.0263	2.089	-0.17%	0.875	4.80	0.291	1.32
6/29/2011	6/29/2010	6/28/2011	253	0.0930	0.0857	0.0263	2.091	-0.17%	0.888	4.89	0.285	1.29
6/30/2011	6/30/2010	6/29/2011	253	0.0897	0.0824	0.0263	2.093	-0.18%	0.889	4.79	0.286	1.31
7/1/2011	7/1/2010	6/30/2011	253	0.0907	0.0835	0.0263	2.091	-0.16%	0.897	4.81	0.293	1.33
7/5/2011	7/5/2010	7/4/2011	252	0.0936	0.0863	0.0263	2.090	-0.17%	0.912	4.91	0.279	1.27
7/6/2011	7/6/2010	7/5/2011	253	0.0931	0.0859	0.0263	2.088	-0.17%	0.911	4.91	0.269	1.23
7/7/2011	7/7/2010	7/6/2011	253	0.0933	0.0861	0.0263	2.084	-0.16%	0.912	4.91	0.281	1.29
7/8/2011	7/8/2010	7/7/2011	253	0.0914	0.0841	0.0263	2.080	-0.15%	0.923	4.86	0.272	1.25
7/11/2011	7/11/2010	7/10/2011	252	0.0909	0.0836	0.0264	2.080	-0.15%	0.921	4.83	0.273	1.25
7/12/2011	7/12/2010	7/11/2011	253	0.0912	0.0839	0.0263	2.079	-0.14%	0.915	4.85	0.273	1.25
7/13/2011	7/13/2010	7/12/2011	253	0.0911	0.0838	0.0264	2.078	-0.14%	0.912	4.84	0.278	1.28
7/14/2011	7/14/2010	7/13/2011	253	0.0917	0.0845	0.0264	2.078	-0.13%	0.923	4.87	0.270	1.24
7/15/2011	7/15/2010	7/14/2011	253	0.0923	0.0851	0.0264	2.079	-0.13%	0.925	4.89	0.268	1.23
7/18/2011	7/18/2010	7/17/2011	252	0.0848	0.0775	0.0264	2.078	-0.13%	0.900	4.64	0.268	1.23

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
7/19/2011	7/19/2010	7/18/2011	253	0.0845	0.0771	0.0263	2.077	-0.12%	0.896	4.64	0.268	1.24
7/20/2011	7/20/2010	7/19/2011	253	0.0894	0.0821	0.0264	2.071	-0.11%	0.925	4.81	0.261	1.20
7/21/2011	7/21/2010	7/20/2011	253	0.0905	0.0832	0.0264	2.082	-0.11%	0.934	4.84	0.263	1.21
7/22/2011	7/22/2010	7/21/2011	253	0.0854	0.0781	0.0264	2.079	-0.10%	0.908	4.70	0.243	1.10
7/25/2011	7/25/2010	7/24/2011	252	0.0840	0.0766	0.0264	2.082	-0.11%	0.912	4.66	0.234	1.08
7/26/2011	7/26/2010	7/25/2011	253	0.0849	0.0776	0.0264	2.083	-0.11%	0.915	4.69	0.239	1.11
7/27/2011	7/27/2010	7/26/2011	253	0.0837	0.0764	0.0263	2.082	-0.13%	0.908	4.64	0.245	1.14
7/28/2011	7/28/2010	7/27/2011	253	0.0858	0.0785	0.0263	2.083	-0.12%	0.909	4.71	0.249	1.15
7/29/2011	7/29/2010	7/28/2011	253	0.0846	0.0773	0.0263	2.082	-0.12%	0.906	4.68	0.235	1.08
8/1/2011	8/1/2010	7/31/2011	252	0.1006	0.0934	0.0249	2.138	-0.07%	0.900	4.93	0.388	1.88
8/2/2011	8/2/2010	8/1/2011	253	0.1002	0.0930	0.0248	2.136	-0.07%	0.900	4.94	0.373	1.85
8/3/2011	8/3/2010	8/2/2011	253	0.1012	0.0940	0.0248	2.123	-0.05%	0.904	5.00	0.358	1.77
8/4/2011	8/4/2010	8/3/2011	253	0.1032	0.0960	0.0248	2.132	-0.06%	0.916	5.07	0.351	1.74
8/5/2011	8/5/2010	8/4/2011	252	0.1013	0.0941	0.0248	2.139	-0.07%	0.907	5.02	0.342	1.69
8/8/2011	8/8/2010	8/7/2011	251	0.1018	0.0946	0.0247	2.143	-0.06%	0.902	5.00	0.357	1.77
8/9/2011	8/9/2010	8/8/2011	252	0.1245	0.1175	0.0247	2.144	-0.06%	0.918	5.68	0.358	1.79
8/10/2011	8/10/2010	8/9/2011	252	0.1345	0.1275	0.0246	2.144	-0.05%	0.922	5.98	0.345	1.72
8/11/2011	8/11/2010	8/10/2011	252	0.1460	0.1391	0.0246	2.145	-0.06%	0.936	6.29	0.346	1.73
8/12/2011	8/12/2010	8/11/2011	252	0.1573	0.1505	0.0245	2.152	-0.08%	0.954	6.59	0.348	1.75
8/15/2011	8/15/2010	8/14/2011	251	0.1573	0.1505	0.0246	2.132	-0.07%	0.954	6.57	0.353	1.78
8/16/2011	8/16/2010	8/15/2011	252	0.1569	0.1501	0.0245	2.132	-0.07%	0.944	6.56	0.357	1.80
8/17/2011	8/17/2010	8/16/2011	252	0.1583	0.1515	0.0242	2.145	-0.04%	0.940	6.63	0.328	1.68
8/18/2011	8/18/2010	8/17/2011	252	0.1549	0.1481	0.0242	2.145	-0.05%	0.931	6.56	0.314	1.60
8/19/2011	8/19/2010	8/18/2011	252	0.1581	0.1513	0.0242	2.140	-0.04%	0.912	6.65	0.314	1.59
8/22/2011	8/22/2010	8/21/2011	251	0.1568	0.1500	0.0241	2.120	-0.04%	0.901	6.58	0.330	1.69
8/23/2011	8/23/2010	8/22/2011	252	0.1567	0.1499	0.0241	2.120	-0.04%	0.901	6.59	0.328	1.68
8/24/2011	8/24/2010	8/23/2011	252	0.1629	0.1561	0.0240	2.123	-0.03%	0.903	6.74	0.335	1.74
8/25/2011	8/25/2010	8/24/2011	252	0.1573	0.1505	0.0240	2.118	-0.03%	0.889	6.62	0.345	1.63
8/26/2011	8/26/2010	8/25/2011	252	0.1583	0.1516	0.0240	2.121	-0.03%	0.890	6.65	0.343	1.62
8/29/2011	8/29/2010	8/28/2011	251	0.1608	0.1540	0.0241	2.118	-0.02%	0.901	6.69	0.352	1.65
8/30/2011	8/30/2010	8/29/2011	252	0.1671	0.1604	0.0241	2.116	-0.02%	0.914	6.88	0.348	1.63
8/31/2011	8/31/2010	8/30/2011	252	0.1647	0.1580	0.0241	2.118	-0.02%	0.909	6.82	0.345	1.62
9/1/2011	9/1/2010	8/31/2011	252	0.1647	0.1580	0.0241	2.118	-0.01%	0.910	6.83	0.339	1.58
9/2/2011	9/2/2010	9/1/2011	252	0.1638	0.1570	0.0241	2.117	-0.02%	0.918 0.919	6.81	0.337	1.56
9/6/2011	9/6/2010 9/7/2010	9/5/2011	251	0.1660	0.1593	0.0242	2.115	-0.03% -0.03%	0.919	6.85	0.337	1.56 1.54
		9/6/2011	252	0.1667	0.1600	0.0241	2.113			6.89	0.332	1.54
9/8/2011	9/8/2010	9/7/2011	252	0.1709	0.1642	0.0241	2.119	-0.02%	0.926	7.00	0.331	
9/9/2011 9/12/2011	9/9/2010 9/12/2010	9/8/2011 9/11/2011	252 251	0.1731 0.1785	0.1665 0.1719	0.0241	2.124	-0.02% -0.04%	0.934 0.936	7.06 7.20	0.324	1.50 1.44
9/12/2011	9/12/2010	9/11/2011	251	0.1785	0.1719	0.0240	2.113	-0.04%	0.936	7.20	0.307	1.44
9/13/2011	9/13/2010	9/12/2011	252	0.1777	0.1711	0.0239	2.113	-0.05%	0.933	7.19	0.310	1.46
9/14/2011	9/14/2010	9/13/2011	252	0.1791	0.1725	0.0239	2.072	-0.04%	0.939	7.23	0.302	1.41
9/15/2011	9/15/2010	9/14/2011	252	0.1857	0.1791	0.0235	2.106	-0.07%	0.940	7.39	0.312	1.49
9/19/2011	9/19/2010	9/13/2011	251	0.1864	0.1798	0.0233	2.103	-0.08%	0.935	7.37	0.324	1.60
9/20/2011	9/20/2010	9/19/2011	252	0.1858	0.1798	0.0235	2.108	-0.07%	0.933	7.37	0.336	1.55
9/21/2011	9/20/2010	9/20/2011	252	0.1844	0.1779	0.0235	2.105	-0.07%	0.933	7.32	0.320	1.65
9/22/2011	9/22/2010	9/21/2011	252	0.1788	0.1779	0.0235	2.103	-0.06%	0.928	7.32	0.343	1.63
9/22/2011	9/22/2010	9/21/2011	232	0.1/88	0.1722	0.0230	2.090	-0.00%	0.904	7.19	0.329	1.37

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Recidual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
9/23/2011	9/23/2010	9/22/2011	252	0.1899	0.1834	0.0236	2.105	-0.07%	0.927	7.47	0.335	1.60
9/26/2011	9/26/2010	9/25/2011	251	0.1840	0.1774	0.0238	2.103	-0.06%	0.921	7.31	0.333	1.55
9/27/2011	9/27/2010	9/26/2011	252	0.1870	0.1805	0.0238	2.119	-0.06%	0.924	7.41	0.329	1.55
9/28/2011	9/28/2010	9/27/2011	252	0.1897	0.1832	0.0237	2.118	-0.06%	0.929	7.47	0.327	1.60
9/29/2011	9/29/2010	9/28/2011	252	0.1910	0.1845	0.0237	2.116	-0.06%	0.927	7.49	0.337	1.63
9/30/2011	9/30/2010	9/29/2011	252	0.1935	0.1870	0.0237	2.142	-0.04%	0.923	7.54	0.345	1.71
10/3/2011	10/3/2010	10/2/2011	251	0.1947	0.1882	0.0235	2.143	-0.03%	0.916	7.54	0.367	1.76
10/4/2011	10/4/2010	10/3/2011	252	0.1932	0.1867	0.0235	2.136	-0.02%	0.906	7.55	0.338	1.65
10/5/2011	10/5/2010	10/4/2011	252	0.1964	0.1900	0.0235	2.134	-0.01%	0.912	7.63	0.334	1.63
10/6/2011	10/6/2010	10/5/2011	252	0.1963	0.1899	0.0235	2.133	-0.01%	0.913	7.63	0.334	1.63
10/7/2011	10/7/2010	10/6/2011	252	0.1985	0.1921	0.0235	2.136	0.00%	0.916	7.69	0.325	1.59
10/10/2011	10/10/2010	10/9/2011	251	0.2028	0.1963	0.0234	2.144	0.01%	0.925	7.80	0.306	1.50
10/11/2011	10/11/2010	10/10/2011	252	0.1990	0.1926	0.0234	2.133	0.00%	0.901	7.70	0.329	1.62
10/12/2011	10/12/2010	10/11/2011	252	0.1989	0.1925	0.0234	2.137	0.00%	0.901	7.70	0.325	1.61
10/13/2011	10/13/2010	10/12/2011	252	0.1986	0.1922	0.0234	2.110	-0.01%	0.897	7.68	0.335	1.67
10/14/2011	10/14/2010	10/13/2011	252	0.1975	0.1910	0.0236	2.079	0.04%	0.901	7.65	0.331	1.64
10/17/2011	10/17/2010	10/16/2011	251	0.2012	0.1948	0.0236	2.104	0.04%	0.908	7.74	0.324	1.60
10/18/2011	10/18/2010	10/17/2011	252	0.2050	0.1986	0.0236	2.108	0.03%	0.914	7.84	0.330	1.64
10/19/2011	10/19/2010	10/18/2011	252	0.2050	0.1986	0.0235	2.109	0.02%	0.911	7.85	0.326	1.62
10/20/2011	10/20/2010	10/19/2011	252	0.2043	0.1979	0.0235	2.082	0.03%	0.909	7.82	0.326	1.66
10/21/2011	10/21/2010	10/20/2011	252	0.2140	0.2077	0.0233	2.079	0.04%	0.919	7.99	0.390	2.00
10/24/2011	10/24/2010	10/23/2011	251	0.2145	0.2082	0.0233	2.093	0.02%	0.916	8.01	0.370	1.89
10/25/2011	10/25/2010	10/24/2011	252	0.2172	0.2109	0.0232	2.093	0.02%	0.922	8.08	0.378	1.94
10/26/2011	10/26/2010	10/25/2011	252	0.2171	0.2108	0.0232	2.091	0.03%	0.918	8.08	0.376	1.93
10/27/2011	10/27/2010	10/26/2011	252	0.2156	0.2093	0.0233	2.089	0.02%	0.912	8.02	0.392	2.01
10/28/2011	10/28/2010	10/27/2011	252	0.2195	0.2133	0.0233	2.089	0.01%	0.910	8.12	0.392	2.01
10/31/2011	10/31/2010	10/30/2011	251	0.2215	0.2152	0.0229	2.087	0.04%	0.908	8.23	0.326	1.69
11/1/2011	11/1/2010	10/31/2011	252	0.2233	0.2170	0.0229	2.087	0.04%	0.906	8.29	0.326	1.70
11/2/2011	11/2/2010	11/1/2011	252	0.2320	0.2258	0.0229	2.079	0.03%	0.919	8.48	0.347	1.82
11/3/2011	11/3/2010	11/2/2011	251	0.2340	0.2278	0.0229	2.084	0.04%	0.922	8.51	0.349	1.83
11/4/2011	11/4/2010	11/3/2011	251	0.2220	0.2157	0.0231	2.046	0.02%	0.901	8.25	0.313	1.63
11/7/2011	11/7/2010	11/6/2011	250	0.2224	0.2161	0.0232	2.071	0.02%	0.907	8.26	0.304	1.58
11/8/2011	11/8/2010	11/7/2011	251	0.2208	0.2145	0.0232	2.070	0.02%	0.904	8.24	0.297	1.54
11/9/2011	11/9/2010	11/8/2011	251	0.2224	0.2161	0.0232	2.078	0.03%	0.909	8.29	0.289	1.50
11/10/2011	11/10/2010	11/9/2011	251	0.2256	0.2193	0.0232	2.086	0.04%	0.901	8.35	0.305	1.58
11/11/2011	11/11/2010	11/10/2011	251	0.2266	0.2204	0.0231	2.088	0.04%	0.903	8.38	0.304	1.58
11/14/2011	11/14/2010	11/13/2011	250	0.2294	0.2232	0.0232	1.782	0.06%	0.910	8.43	0.307	1.59
11/15/2011	11/15/2010	11/14/2011	251	0.2305	0.2243	0.0232	1.786	0.05%	0.912	8.47	0.309	1.60
11/16/2011	11/16/2010	11/15/2011	251	0.3020	0.2964	0.0193	1.926	0.13%	0.905	10.10	0.374	2.32
11/17/2011	11/17/2010	11/16/2011	251	0.3126	0.3070	0.0191	1.960	0.11%	0.919	10.36	0.371	2.33
11/18/2011	11/18/2010	11/17/2011	251	0.3140	0.3085	0.0191	1.956	0.11%	0.918	10.40	0.365	2.30
11/21/2011	11/21/2010	11/20/2011	250	0.3121	0.3065	0.0192	1.921	0.09%	0.923	10.33	0.368	2.29
11/22/2011	11/22/2010	11/21/2011	251	0.3102	0.3046	0.0192	1.952	0.10%	0.916	10.31	0.369	2.30
11/23/2011	11/23/2010	11/22/2011	251	0.3122	0.3066	0.0192	1.957	0.11%	0.913	10.31	0.391	2.49
11/25/2011	11/25/2010	11/24/2011	250	0.3130	0.3074	0.0192	1.960	0.11%	0.914	10.31	0.390	2.48
11/28/2011	11/28/2010	11/27/2011	250	0.3126	0.3071	0.0192	1.956	0.11%	0.914	10.31	0.389	2.48
11/29/2011	11/29/2010	11/28/2011	251	0.3184	0.3129	0.0192	1.956	0.12%	0.919	10.47	0.391	2.49

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Recidual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
11/30/2011	11/30/2010	11/29/2011	251	0.3187	0.3132	0.0191	1.956	0.12%	0.918	10.48	0.392	2.50
12/1/2011	12/1/2010	11/30/2011	251	0.3187	0.3228	0.0191	1.957	0.12%	0.922	10.72	0.393	2.52
12/2/2011	12/2/2010	12/1/2011	251	0.3264	0.3210	0.0191	1.948	0.12%	0.921	10.72	0.396	2.54
12/5/2011	12/5/2010	12/4/2011	250	0.3204	0.3241	0.0191	1.955	0.12%	0.921	10.75	0.346	2.41
12/6/2011	12/6/2010	12/5/2011	251	0.3273	0.3256	0.0191	1.956	0.13%	0.931	10.73	0.347	2.45
12/7/2011	12/7/2010	12/6/2011	251	0.3316	0.3252	0.0191	1.954	0.13%	0.931	10.80	0.347	2.43
12/8/2011	12/8/2010	12/7/2011	251	0.3305	0.3251	0.0191	1.956	0.13%	0.931	10.80	0.343	2.42
12/9/2011	12/9/2010	12/8/2011	251	0.3367	0.3314	0.0191	1.950	0.13%	0.940	10.94	0.345	2.51
12/12/2011	12/12/2010	12/11/2011	250	0.3373	0.3319	0.0191	1.963	0.13%	0.940	10.97	0.333	2.33
12/13/2011	12/13/2010	12/12/2011	251	0.3382	0.3329	0.0191	1.966	0.12%	0.940	11.01	0.331	2.33
12/14/2011	12/14/2010	12/13/2011	251	0.3387	0.3334	0.0191	1.963	0.12%	0.941	11.03	0.329	2.33
12/15/2011	12/15/2010	12/14/2011	251	0.3401	0.3348	0.0191	1.957	0.11%	0.944	11.03	0.322	2.26
12/16/2011	12/16/2010	12/15/2011	251	0.3398	0.3345	0.0191	1.960	0.11%	0.945	11.06	0.322	2.32
12/19/2011	12/19/2010	12/18/2011	250	0.3393	0.3340	0.0191	1.966	0.11%	0.943	11.02	0.339	2.31
12/20/2011	12/20/2010	12/19/2011	251	0.3403	0.3350	0.0191	1.965	0.11%	0.945	11.07	0.338	2.31
12/21/2011	12/21/2010	12/20/2011	251	0.3433	0.3380	0.0191	1.963	0.11%	0.942	11.15	0.339	2.32
12/22/2011	12/22/2010	12/21/2011	251	0.3421	0.3368	0.0192	1.955	0.12%	0.943	11.08	0.367	2.48
12/23/2011	12/23/2010	12/22/2011	251	0.3436	0.3383	0.0192	1.958	0.12%	0.945	11.11	0.375	2.54
12/27/2011	12/27/2010	12/26/2011	251	0.3437	0.3384	0.0192	1.959	0.12%	0.945	11.11	0.376	2.54
12/28/2011	12/28/2010	12/27/2011	251	0.3438	0.3385	0.0192	1.959	0.12%	0.945	11.11	0.376	2.54
12/29/2011	12/29/2010	12/28/2011	251	0.3441	0.3388	0.0192	1.959	0.13%	0.944	11.12	0.377	2.55
12/30/2011	12/30/2010	12/29/2011	251	0.3459	0.3406	0.0192	1.957	0.13%	0.946	11.16	0.381	2.59
1/3/2012	1/3/2011	1/2/2012	250	0.3463	0.3410	0.0192	1.955	0.14%	0.945	11.15	0.377	2.55
1/4/2012	1/4/2011	1/3/2012	250	0.3331	0.3277	0.0195	1.926	0.12%	0.930	10.81	0.386	2.57
1/5/2012	1/5/2011	1/4/2012	250	0.3331	0.3277	0.0196	1.933	0.11%	0.930	10.79	0.396	2.63
1/6/2012	1/6/2011	1/5/2012	250	0.3278	0.3223	0.0197	1.906	0.09%	0.927	10.66	0.398	2.61
1/9/2012	1/9/2011	1/8/2012	249	0.3288	0.3233	0.0198	1.914	0.07%	0.928	10.67	0.394	2.59
1/10/2012	1/10/2011	1/9/2012	250	0.3231	0.3177	0.0199	1.888	0.06%	0.926	10.57	0.380	2.48
1/11/2012	1/11/2011	1/10/2012	250	0.3278	0.3224	0.0197	1.924	0.04%	0.929	10.71	0.365	2.41
1/12/2012	1/12/2011	1/11/2012	250	0.3277	0.3223	0.0197	1.874	0.05%	0.930	10.70	0.371	2.44
1/13/2012	1/13/2011	1/12/2012	250	0.3457	0.3404	0.0192	1.967	0.08%	0.943	11.17	0.354	2.40
1/17/2012	1/17/2011	1/16/2012	249	0.3525	0.3472	0.0190	2.008	0.10%	0.947	11.32	0.353	2.40
1/18/2012	1/18/2011	1/17/2012	250	0.3519	0.3467	0.0190	2.006	0.10%	0.947	11.33	0.352	2.40
1/19/2012	1/19/2011	1/18/2012	250	0.3530	0.3478	0.0189	2.007	0.10%	0.944	11.34	0.360	2.46
1/20/2012	1/20/2011	1/19/2012	250	0.3530	0.3478	0.0189	2.004	0.10%	0.945	11.35	0.359	2.45
1/23/2012	1/23/2011	1/22/2012	249	0.3514	0.3461	0.0190	1.997	0.10%	0.945	11.29	0.352	2.40
1/24/2012	1/24/2011	1/23/2012	250	0.3486	0.3433	0.0191	2.015	0.11%	0.945	11.25	0.346	2.35
1/25/2012	1/25/2011	1/24/2012	250	0.3492	0.3439	0.0190	2.020	0.13%	0.947	11.31	0.321	2.16
1/26/2012	1/26/2011	1/25/2012	250	0.3499	0.3446	0.0190	2.022	0.13%	0.948	11.32	0.321	2.17
1/27/2012	1/27/2011	1/26/2012	250	0.3480	0.3428	0.0191	2.015	0.14%	0.946	11.28	0.317	2.14
1/30/2012	1/30/2011	1/29/2012	249	0.3606	0.3554	0.0179	1.968	0.18%	0.911	11.49	0.360	2.57
1/31/2012	1/31/2011	1/30/2012	250	0.3609	0.3557	0.0179	1.967	0.17%	0.911	11.52	0.362	2.59
2/1/2012	2/1/2011	1/31/2012	250	0.3520	0.3467	0.0182	1.899	0.15%	0.911	11.32	0.347	2.45
2/2/2012	2/2/2011	2/1/2012	250	0.3614	0.3562	0.0181	1.932	0.17%	0.927	11.57	0.340	2.42
2/3/2012	2/3/2011	2/2/2012	250	0.3643	0.3592	0.0180	1.949	0.17%	0.928	11.64	0.343	2.45
2/6/2012	2/6/2011	2/5/2012	249	0.3665	0.3613	0.0178	2.003	0.13%	0.920	11.68	0.333	2.41
2/7/2012	2/7/2011	2/6/2012	250	0.3665	0.3614	0.0178	2.005	0.13%	0.920	11.71	0.332	2.42

	Control Period	Control Period			Model	Standard	Durbin		Market		Industry Residual	
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
2/8/2012	2/8/2011	2/7/2012	250	0.3656	0.3605	0.0178	2.004	0.13%	0.918	11.70	0.325	2.36
2/9/2012	2/9/2011	2/8/2012	250	0.3657	0.3605	0.0178	2.004	0.13%	0.918	11.70	0.323	2.38
2/10/2012	2/10/2011	2/9/2012	249	0.3663	0.3612	0.0178	2.002	0.12%	0.918	11.69	0.327	2.36
2/13/2012	2/13/2011	2/12/2012	249	0.3660	0.3608	0.0178	2.003	0.12%	0.919	11.66	0.323	2.30
2/13/2012	2/13/2011	2/13/2012	249	0.3658	0.3606	0.0178	2.002	0.11%	0.919	11.68	0.319	2.31
2/15/2012	2/15/2011	2/14/2012	249	0.3646	0.3595	0.0178	1.997	0.11%	0.918	11.66	0.316	2.26
2/16/2012	2/16/2011	2/15/2012	249	0.3646	0.3594	0.0178	1.988	0.12%	0.917	11.67	0.311	2.25
2/17/2012	2/17/2011	2/15/2012	249	0.3656	0.3604	0.0178	1.993	0.11%	0.917	11.69	0.309	2.25
2/21/2012	2/21/2011	2/20/2012	248	0.3641	0.3589	0.0178	1.992	0.12%	0.918	11.65	0.293	2.23
2/22/2012	2/22/2011	2/21/2012	249	0.3643	0.3591	0.0178	1.994	0.10%	0.917	11.68	0.293	2.11
2/23/2012	2/23/2011	2/22/2012	249	0.3622	0.3570	0.0178	1.985	0.10%	0.917	11.62	0.293	2.14
2/24/2012	2/24/2011	2/23/2012	249	0.3604	0.3552	0.0178	1.959	0.10%	0.910	11.60	0.232	2.14
2/27/2012	2/27/2011	2/26/2012	248	0.3649	0.3598	0.0177	1.962	0.11%	0.915	11.70	0.273	2.00
2/28/2012	2/28/2011	2/27/2012	249	0.3647	0.3595	0.0176	1.961	0.10%	0.915	11.70	0.271	2.00
2/29/2012	2/28/2011	2/28/2012	250	0.3642	0.3590	0.0176	1.965	0.11%	0.914	11.72	0.271	2.01
3/1/2012	3/1/2011	2/29/2012	250	0.3648	0.3597	0.0176	1.957	0.10%	0.917	11.72	0.272	2.06
3/2/2012	3/2/2011	3/1/2012	250	0.3633	0.3581	0.0176	1.943	0.10%	0.914	11.68	0.277	2.14
3/5/2012	3/5/2011	3/4/2012	248	0.3624	0.3572	0.0176	1.955	0.08%	0.909	11.60	0.298	2.19
3/6/2012	3/6/2011	3/5/2012	249	0.3626	0.3575	0.0176	1.954	0.07%	0.910	11.62	0.300	2.21
3/7/2012	3/7/2011	3/6/2012	250	0.3642	0.3591	0.0175	1.956	0.07%	0.911	11.69	0.300	2.22
3/8/2012	3/8/2011	3/7/2012	250	0.3635	0.3583	0.0175	1.948	0.08%	0.907	11.66	0.304	2.25
3/9/2012	3/9/2011	3/8/2012	250	0.3609	0.3558	0.0175	1.946	0.07%	0.902	11.61	0.292	2.16
3/12/2012	3/12/2011	3/11/2012	248	0.3576	0.3523	0.0175	1.956	0.08%	0.900	11.50	0.276	2.02
3/13/2012	3/13/2011	3/12/2012	249	0.3568	0.3516	0.0175	1.960	0.08%	0.900	11.50	0.277	2.03
3/14/2012	3/14/2011	3/13/2012	250	0.3556	0.3503	0.0175	1.956	0.07%	0.896	11.50	0.272	2.00
3/15/2012	3/15/2011	3/14/2012	250	0.3547	0.3495	0.0175	1.956	0.08%	0.894	11.49	0.267	1.97
3/16/2012	3/16/2011	3/15/2012	250	0.3564	0.3512	0.0175	1.950	0.09%	0.899	11.51	0.282	2.08
3/19/2012	3/19/2011	3/18/2012	248	0.3662	0.3610	0.0173	1.959	0.10%	0.913	11.74	0.262	1.94
3/20/2012	3/20/2011	3/19/2012	249	0.3661	0.3610	0.0173	1.968	0.10%	0.914	11.76	0.259	1.93
3/21/2012	3/21/2011	3/20/2012	250	0.3662	0.3611	0.0173	1.968	0.10%	0.914	11.79	0.259	1.94
3/22/2012	3/22/2011	3/21/2012	250	0.3652	0.3600	0.0173	1.967	0.10%	0.914	11.76	0.258	1.93
3/23/2012	3/23/2011	3/22/2012	250	0.3654	0.3602	0.0173	1.969	0.10%	0.916	11.77	0.254	1.90
3/26/2012	3/26/2011	3/25/2012	248	0.3713	0.3661	0.0172	1.995	0.12%	0.921	11.87	0.258	1.94
3/27/2012	3/27/2011	3/26/2012	249	0.3717	0.3666	0.0172	1.995	0.12%	0.920	11.91	0.254	1.92
3/28/2012	3/28/2011	3/27/2012	250	0.3718	0.3667	0.0172	1.995	0.12%	0.921	11.94	0.254	1.92
3/29/2012	3/29/2011	3/28/2012	250	0.3716	0.3666	0.0172	1.986	0.12%	0.920	11.93	0.254	1.91
3/30/2012	3/30/2011	3/29/2012	250	0.3718	0.3667	0.0171	1.979	0.11%	0.917	11.94	0.254	1.93
4/2/2012	4/2/2011	4/1/2012	248	0.3735	0.3684	0.0171	1.977	0.10%	0.918	11.93	0.257	1.95
4/3/2012	4/3/2011	4/2/2012	249	0.3740	0.3689	0.0171	1.983	0.10%	0.919	11.97	0.256	1.94
4/4/2012	4/4/2011	4/3/2012	250	0.3737	0.3687	0.0171	1.982	0.10%	0.918	11.98	0.256	1.95
4/5/2012	4/5/2011	4/4/2012	250	0.3760	0.3709	0.0172	1.975	0.09%	0.926	12.01	0.281	2.13
4/9/2012	4/9/2011	4/8/2012	247	0.3772	0.3721	0.0172	1.987	0.07%	0.926	11.98	0.274	2.05
4/10/2012	4/10/2011	4/9/2012	248	0.3790	0.3739	0.0172	1.986	0.07%	0.928	12.05	0.277	2.08
4/11/2012	4/11/2011	4/10/2012	249	0.3795	0.3745	0.0172	1.987	0.07%	0.926	12.09	0.278	2.10
4/12/2012	4/12/2011	4/11/2012	249	0.3803	0.3753	0.0172	1.981	0.08%	0.928	12.10	0.283	2.13
4/13/2012	4/13/2011	4/12/2012	249	0.3817	0.3767	0.0172	1.987	0.07%	0.930	12.14	0.279	2.10
4/16/2012	4/16/2011	4/15/2012	247	0.3840	0.3789	0.0172	1.813	0.07%	0.931	12.14	0.288	2.16

_	Control Period Control Period				Model	Standard	Durbin	_	Market		Industry Residual	
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
4/17/2012	4/17/2011	4/16/2012	248	0.3840	0.3790	0.0172	1.813	0.07%	0.931	12.17	0.288	2.17
4/18/2012	4/18/2011	4/17/2012	249	0.3869	0.3819	0.0172	1.811	0.08%	0.936	12.26	0.291	2.20
4/19/2012	4/19/2011	4/18/2012	249	0.4473	0.4428	0.0156	1.992	0.04%	0.960	13.79	0.359	2.96
4/20/2012	4/20/2011	4/19/2012	249	0.4457	0.4412	0.0157	1.980	0.05%	0.957	13.73	0.370	3.05
4/23/2012	4/23/2011	4/22/2012	248	0.4461	0.4415	0.0157	1.990	0.04%	0.960	13.71	0.372	3.07
4/24/2012	4/24/2011	4/23/2012	249	0.4468	0.4423	0.0157	1.987	0.04%	0.962	13.76	0.371	3.06
4/25/2012	4/25/2011	4/24/2012	250	0.4468	0.4423	0.0157	1.991	0.04%	0.963	13.79	0.371	3.07
4/26/2012	4/26/2011	4/25/2012	250	0.4468	0.4423	0.0157	1.994	0.04%	0.961	13.79	0.369	3.05
4/27/2012	4/27/2011	4/26/2012	250	0.4462	0.4418	0.0158	1.983	0.06%	0.966	13.79	0.364	2.99
4/30/2012	4/30/2011	4/29/2012	248	0.4494	0.4449	0.0157	1.971	0.06%	0.966	13.82	0.365	3.01
5/1/2012	5/1/2011	4/30/2012	249	0.4488	0.4443	0.0157	1.972	0.06%	0.966	13.84	0.356	2.95
5/2/2012	5/2/2011	5/1/2012	250	0.4469	0.4424	0.0157	1.964	0.05%	0.965	13.82	0.353	2.93
5/3/2012	5/3/2011	5/2/2012	249	0.4477	0.4432	0.0157	1.975	0.04%	0.966	13.85	0.336	2.77
5/4/2012	5/4/2011	5/3/2012	249	0.4488	0.4443	0.0157	1.975	0.03%	0.968	13.89	0.329	2.72
5/7/2012	5/7/2011	5/6/2012	247	0.4597	0.4553	0.0154	1.950	0.00%	0.972	14.19	0.302	2.53
5/8/2012	5/8/2011	5/7/2012	248	0.4597	0.4553	0.0154	1.957	0.00%	0.972	14.21	0.302	2.54
5/9/2012	5/9/2011	5/8/2012	249	0.4593	0.4549	0.0154	1.955	0.00%	0.973	14.24	0.298	2.50
5/10/2012	5/10/2011	5/9/2012	249	0.4600	0.4556	0.0154	1.945	0.00%	0.974	14.26	0.294	2.47
5/11/2012	5/11/2011	5/10/2012	249	0.4603	0.4559	0.0154	1.925	0.00%	0.972	14.25	0.308	2.59
5/14/2012	5/14/2011	5/13/2012	247	0.4610	0.4565	0.0154	1.929	0.01%	0.970	14.21	0.307	2.58
5/15/2012	5/15/2011	5/14/2012	248	0.4613	0.4569	0.0154	1.931	0.00%	0.973	14.27	0.295	2.49
5/16/2012	5/16/2011	5/15/2012	249	0.4616	0.4572	0.0153	1.933	0.00%	0.974	14.31	0.295	2.49
5/17/2012	5/17/2011	5/16/2012	249	0.4616	0.4573	0.0153	1.928	0.00%	0.974	14.31	0.295	2.49
5/18/2012	5/18/2011	5/17/2012	249	0.4644	0.4600	0.0153	1.888	0.00%	0.974	14.38	0.300	2.54
5/21/2012	5/21/2011	5/20/2012	247	0.4701	0.4658	0.0150	1.943	-0.02%	0.966	14.49	0.301	2.58
5/22/2012	5/22/2011	5/21/2012	248	0.4710	0.4666	0.0150	1.942	-0.03%	0.966	14.54	0.300	2.58
5/23/2012	5/23/2011	5/22/2012	249	0.4711	0.4668	0.0150	1.942	-0.03%	0.966	14.57	0.301	2.62
5/24/2012	5/24/2011	5/23/2012	249	0.4697	0.4654	0.0150	1.939	-0.02%	0.965	14.53	0.300	2.60
5/25/2012	5/25/2011	5/24/2012	249	0.4706	0.4663	0.0150	1.937	-0.01%	0.965	14.55	0.303	2.63
5/29/2012	5/29/2011	5/28/2012	247	0.4702	0.4659	0.0150	1.939	-0.02%	0.965	14.48	0.305	2.64
5/30/2012	5/30/2011	5/29/2012	248	0.4709	0.4665	0.0150	1.942	-0.02%	0.965	14.53	0.304	2.64
5/31/2012	5/31/2011	5/30/2012	249	0.4731	0.4688	0.0150	1.942	-0.03%	0.968	14.62	0.307	2.67
6/1/2012	6/1/2011	5/31/2012	249	0.4732	0.4689	0.0150	1.938	-0.03%	0.971	14.63	0.304	2.64
6/4/2012	6/4/2011	6/3/2012	247	0.4685	0.4641	0.0151	1.948	-0.02%	0.961	14.42	0.309	2.66
6/5/2012	6/5/2011	6/4/2012	248	0.4684	0.4641	0.0150	1.951	-0.02%	0.961	14.45	0.310	2.67
6/6/2012	6/6/2011	6/5/2012	249	0.4688	0.4645	0.0150	1.951	-0.01%	0.963	14.48	0.317	2.73
6/7/2012	6/7/2011	6/6/2012	249	0.4716	0.4673	0.0151	1.943	0.00%	0.968	14.58	0.307	2.65
6/8/2012	6/8/2011	6/7/2012	249	0.4717	0.4674	0.0151	1.949	0.00%	0.968	14.58	0.308	2.66
6/11/2012	6/11/2011	6/10/2012	247	0.4689	0.4646	0.0151	1.955	0.01%	0.961	14.45	0.301	2.60
6/12/2012	6/12/2011	6/11/2012	248	0.4702	0.4659	0.0151	1.954	0.01%	0.963	14.52	0.299	2.58
6/13/2012	6/13/2011	6/12/2012	249	0.4704	0.4661	0.0150	1.954	0.01%	0.962	14.55	0.300	2.59
6/14/2012	6/14/2011	6/13/2012	249	0.4720	0.4677	0.0150	1.958	0.01%	0.963	14.60	0.300	2.61
6/15/2012	6/15/2011	6/14/2012	249	0.4731	0.4688	0.0150	1.961	0.01%	0.966	14.63	0.300	2.60
6/18/2012	6/18/2011	6/17/2012	247	0.4711	0.4668	0.0150	1.949	0.02%	0.962	14.51	0.304	2.62
6/19/2012	6/19/2011	6/18/2012	248	0.4711	0.4668	0.0150	1.946	0.03%	0.962	14.53	0.310	2.69
6/20/2012	6/20/2011	6/19/2012	249	0.4721	0.4678	0.0150	1.942	0.03%	0.964	14.58	0.311	2.70
6/21/2012	6/21/2011	6/20/2012	249	0.4727	0.4685	0.0149	1.949	0.02%	0.961	14.61	0.303	2.65

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
6/22/2012	6/22/2011	6/21/2012	249	0.4750	0.4708	0.0149	1.951	0.02%	0.963	14.69	0.301	2.63
6/25/2012	6/25/2011	6/24/2012	247	0.4785	0.4742	0.0149	1.937	0.02%	0.967	14.74	0.293	2.56
6/26/2012	6/26/2011	6/25/2012	248	0.4800	0.4758	0.0149	1.937	0.02%	0.967	14.82	0.292	2.56
6/27/2012	6/27/2011	6/26/2012	249	0.4801	0.4758	0.0148	1.937	0.02%	0.967	14.85	0.292	2.56
6/28/2012	6/28/2011	6/27/2012	249	0.4797	0.4755	0.0149	1.932	0.02%	0.967	14.85	0.288	2.53
6/29/2012	6/29/2011	6/28/2012	249	0.4782	0.4740	0.0148	1.932	0.01%	0.964	14.80	0.288	2.54
7/2/2012	7/2/2011	7/1/2012	247	0.4821	0.4779	0.0148	1.935	0.01%	0.967	14.87	0.284	2.48
7/3/2012	7/3/2011	7/2/2012	248	0.4823	0.4780	0.0148	1.935	0.01%	0.967	14.89	0.289	2.52
7/5/2012	7/5/2011	7/4/2012	249	0.4822	0.4780	0.0148	1.937	0.01%	0.967	14.92	0.289	2.53
7/6/2012	7/6/2011	7/5/2012	249	0.4831	0.4789	0.0148	1.937	0.01%	0.967	14.94	0.297	2.59
7/9/2012	7/9/2011	7/8/2012	247	0.4851	0.4809	0.0147	1.962	-0.01%	0.965	14.94	0.294	2.57
7/10/2012	7/10/2011	7/9/2012	248	0.4834	0.4792	0.0148	1.956	0.00%	0.964	14.91	0.303	2.64
7/11/2012	7/11/2011	7/10/2012	249	0.4833	0.4791	0.0147	1.959	0.00%	0.963	14.94	0.302	2.64
7/12/2012	7/12/2011	7/11/2012	249	0.4806	0.4764	0.0148	1.956	-0.01%	0.966	14.86	0.300	2.61
7/13/2012	7/13/2011	7/12/2012	249	0.4810	0.4768	0.0148	1.965	-0.01%	0.967	14.88	0.297	2.58
7/16/2012	7/16/2011	7/15/2012	247	0.4824	0.4782	0.0149	1.957	-0.01%	0.970	14.88	0.287	2.47
7/17/2012	7/17/2011	7/16/2012	248	0.4784	0.4741	0.0149	1.931	0.01%	0.969	14.78	0.292	2.50
7/18/2012	7/18/2011	7/17/2012	249	0.4794	0.4752	0.0150	1.925	0.01%	0.972	14.82	0.303	2.61
7/19/2012	7/19/2011	7/18/2012	249	0.4792	0.4750	0.0150	1.926	0.00%	0.971	14.80	0.312	2.70
7/20/2012	7/20/2011	7/19/2012	249	0.4775	0.4732	0.0148	1.926	-0.01%	0.961	14.74	0.315	2.74
7/23/2012	7/23/2011	7/22/2012	247	0.4818	0.4776	0.0149	1.917	-0.01%	0.970	14.80	0.328	2.81
7/24/2012	7/24/2011	7/23/2012	248	0.4826	0.4783	0.0149	1.923	-0.01%	0.971	14.85	0.328	2.83
7/25/2012	7/25/2011	7/24/2012	249	0.4825	0.4783	0.0148	1.923	-0.01%	0.970	14.88	0.327	2.82
7/26/2012	7/26/2011	7/25/2012	249	0.4817	0.4775	0.0149	1.920	0.00%	0.969	14.84	0.335	2.90
7/27/2012	7/27/2011	7/26/2012	249	0.4812	0.4770	0.0148	1.927	0.00%	0.963	14.80	0.340	3.02
7/30/2012	7/30/2011	7/29/2012	247	0.4765	0.4722	0.0149	1.918	0.00%	0.957	14.61	0.336	2.96
7/31/2012	7/31/2011	7/30/2012	248	0.4760	0.4717	0.0149	1.927	0.00%	0.957	14.62	0.333	2.94
8/1/2012	8/1/2011	7/31/2012	249	0.4758	0.4715	0.0149	1.930	0.00%	0.958	14.66	0.329	2.91
8/2/2012	8/2/2011	8/1/2012	249	0.4762	0.4720	0.0149	1.930	0.00%	0.958	14.66	0.340	2.95
8/3/2012	8/3/2011	8/2/2012	248	0.4786	0.4744	0.0149	1.941	-0.01%	0.966	14.70	0.341	2.97
8/6/2012	8/6/2011	8/5/2012	247	0.4759	0.4716	0.0149	1.934	-0.02%	0.961	14.61	0.330	2.85
8/7/2012	8/7/2011	8/6/2012	248	0.4758	0.4715	0.0149	1.941	-0.02%	0.961	14.64	0.328	2.85
8/8/2012	8/8/2011	8/7/2012	249	0.4762	0.4720	0.0149	1.940	-0.02%	0.961	14.68	0.330	2.87
8/9/2012	8/9/2011	8/8/2012	249	0.4520	0.4475	0.0149	1.940	-0.02%	0.958	13.95	0.330	2.87
8/10/2012	8/10/2011	8/9/2012	249	0.4424	0.4378	0.0149	1.940	-0.02%	0.961	13.67	0.332	2.87
8/13/2012	8/13/2011	8/12/2012	247	0.4218	0.4171	0.0149	1.933	-0.02%	0.965	13.05	0.323	2.77
8/14/2012	8/14/2011	8/13/2012	248	0.4205	0.4158	0.0150	1.926	-0.03%	0.966	13.04	0.324	2.78
8/15/2012	8/15/2011	8/14/2012	249	0.4205	0.4158	0.0149	1.928	-0.03%	0.966	13.07	0.325	2.79
8/16/2012	8/16/2011	8/15/2012	249	0.4216	0.4169	0.0149	1.927	-0.03%	0.973	13.11	0.320	2.75
8/17/2012	8/17/2011	8/16/2012	249	0.4219	0.4172	0.0149	1.923	-0.03%	0.977	13.14	0.307	2.64
8/20/2012	8/20/2011	8/19/2012	247	0.4175	0.4127	0.0150	1.929	-0.04%	0.997	12.97	0.302	2.57
8/21/2012	8/21/2011	8/20/2012	248	0.4174	0.4127	0.0150	1.933	-0.04%	0.997	12.99	0.305	2.61
8/22/2012	8/22/2011	8/21/2012	249	0.4172	0.4125	0.0149	1.932	-0.04%	0.996	13.01	0.305	2.62
8/23/2012	8/23/2011	8/22/2012	249	0.4179	0.4131	0.0149	1.933	-0.04%	0.997	13.02	0.307	2.64
8/24/2012	8/24/2011	8/23/2012	249	0.4068	0.4020	0.0150	1.920	-0.03%	0.990	12.71	0.313	2.66
8/27/2012	8/27/2011	8/26/2012	247	0.4065	0.4016	0.0149	1.948	-0.04%	0.986	12.63	0.322	2.74
8/28/2012	8/28/2011	8/27/2012	248	0.4061	0.4013	0.0149	1.950	-0.03%	0.986	12.65	0.322	2.74

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
8/29/2012	8/29/2011	8/28/2012	249	0.4053	0.4005	0.0149	1.944	-0.03%	0.985	12.65	0.325	2.77
8/30/2012	8/30/2011	8/29/2012	249	0.3954	0.3905	0.0149	1.929	-0.02%	0.975	12.35	0.340	2.90
8/31/2012	8/31/2011	8/30/2012	249	0.3954	0.3905	0.0149	1.936	-0.02%	0.974	12.35	0.340	2.90
9/4/2012	9/4/2011	9/3/2012	247	0.3854	0.3804	0.0149	1.938	-0.01%	0.960	12.03	0.341	2.90
9/5/2012	9/5/2011	9/4/2012	248	0.3851	0.3801	0.0149	1.933	0.00%	0.959	12.01	0.353	3.02
9/6/2012	9/6/2011	9/5/2012	249	0.3840	0.3789	0.0149	1.926	0.01%	0.958	12.01	0.352	3.01
9/7/2012	9/7/2011	9/6/2012	249	0.3855	0.3805	0.0149	1.925	0.01%	0.955	12.04	0.357	3.05
9/10/2012	9/10/2011	9/9/2012	247	0.3618	0.3566	0.0150	1.913	0.01%	0.931	11.39	0.347	2.93
9/11/2012	9/11/2011	9/10/2012	248	0.3627	0.3575	0.0149	1.917	0.00%	0.933	11.43	0.347	2.94
9/12/2012	9/12/2011	9/11/2012	249	0.3577	0.3525	0.0150	1.894	-0.01%	0.930	11.33	0.350	2.94
9/13/2012	9/13/2011	9/12/2012	249	0.3593	0.3541	0.0150	1.918	0.00%	0.933	11.38	0.348	2.93
9/14/2012	9/14/2011	9/13/2012	249	0.3568	0.3516	0.0150	1.917	-0.01%	0.926	11.30	0.349	2.94
9/17/2012	9/17/2011	9/16/2012	247	0.3582	0.3530	0.0151	1.921	0.00%	0.934	11.30	0.345	2.90
9/18/2012	9/18/2011	9/17/2012	248	0.3569	0.3516	0.0151	1.917	0.01%	0.932	11.29	0.346	2.91
9/19/2012	9/19/2011	9/18/2012	249	0.3567	0.3515	0.0150	1.916	0.01%	0.932	11.30	0.348	2.94
9/20/2012	9/20/2011	9/19/2012	249	0.3577	0.3525	0.0150	1.922	0.01%	0.934	11.31	0.357	2.99
9/21/2012	9/21/2011	9/20/2012	249	0.3574	0.3521	0.0150	1.913	0.00%	0.935	11.33	0.347	2.89
9/24/2012	9/24/2011	9/23/2012	247	0.3571	0.3519	0.0146	1.865	-0.02%	0.930	11.23	0.357	3.06
9/25/2012	9/25/2011	9/24/2012	248	0.3572	0.3519	0.0146	1.866	-0.02%	0.930	11.26	0.357	3.07
9/26/2012	9/26/2011	9/25/2012	249	0.3552	0.3500	0.0146	1.862	-0.01%	0.925	11.22	0.359	3.09
9/27/2012	9/27/2011	9/26/2012	249	0.3514	0.3462	0.0146	1.869	-0.02%	0.924	11.12	0.360	3.09
9/28/2012	9/28/2011	9/27/2012	249	0.3501	0.3448	0.0146	1.874	-0.02%	0.922	11.10	0.356	3.05
10/1/2012	10/1/2011	9/30/2012	247	0.3471	0.3417	0.0146	1.874	-0.03%	0.933	10.98	0.358	3.04
10/2/2012	10/2/2011	10/1/2012	248	0.3467	0.3414	0.0146	1.874	-0.03%	0.932	10.99	0.358	3.04
10/3/2012	10/3/2011	10/2/2012	249	0.3463	0.3410	0.0146	1.872	-0.03%	0.932	11.01	0.355	3.03
10/4/2012	10/4/2011	10/3/2012	249	0.3448	0.3394	0.0148	1.879	-0.02%	0.950	10.92	0.383	3.18
10/5/2012	10/5/2011	10/4/2012	249	0.3397	0.3344	0.0148	1.890	-0.02%	0.945	10.78	0.388	3.22
10/8/2012	10/8/2011	10/7/2012	247	0.3329	0.3275	0.0148	1.892	-0.02%	0.935	10.53	0.397	3.29
10/9/2012	10/9/2011	10/8/2012	248	0.3337	0.3282	0.0147	1.891	-0.02%	0.936	10.57	0.398	3.31
10/10/2012	10/10/2011	10/9/2012	249	0.3425	0.3371	0.0147	1.893	-0.03%	0.945	10.71	0.417	3.65
10/11/2012	10/11/2011	10/10/2012	249	0.3512	0.3459	0.0146	1.897	-0.03%	0.985	11.01	0.396	3.46
10/12/2012	10/12/2011	10/11/2012	249	0.3515	0.3463	0.0146	1.900	-0.03%	0.985	11.01	0.399	3.49
10/15/2012	10/15/2011	10/14/2012	247	0.3742	0.3691	0.0140	1.908	-0.06%	0.992	11.53	0.397	3.60
10/16/2012	10/16/2011	10/15/2012	248	0.3747	0.3696	0.0140	1.908	-0.06%	0.993	11.57	0.396	3.61
10/17/2012	10/17/2011	10/16/2012	249	0.3769	0.3719	0.0140	1.902	-0.05%	1.000	11.65	0.399	3.62
10/18/2012	10/18/2011	10/17/2012	249	0.3704	0.3653	0.0140	1.913	-0.05%	0.990	11.45	0.401	3.68
10/19/2012	10/19/2011	10/18/2012	249	0.3699	0.3647	0.0140	1.909	-0.05%	0.996	11.41	0.409	3.75
10/22/2012	10/22/2011	10/21/2012	247	0.3607	0.3555	0.0141	1.903	-0.03%	0.989	11.21	0.392	3.48
10/23/2012	10/23/2011	10/22/2012	248	0.3604	0.3552	0.0141	1.901	-0.03%	0.989	11.20	0.398	3.55
10/24/2012	10/24/2011	10/23/2012	249	0.3586	0.3534	0.0141	1.893	-0.02%	0.982	11.18	0.396	3.53
10/25/2012	10/25/2011	10/24/2012	249	0.3536	0.3483	0.0141	1.907	-0.03%	0.974	11.08	0.385	3.43
10/26/2012	10/26/2011	10/25/2012	249	0.3547	0.3494	0.0141	1.896	-0.04%	0.983	11.10	0.386	3.45
10/31/2012	10/31/2011	10/30/2012	247	0.3525	0.3472	0.0140	1.907	-0.02%	1.002	11.04	0.372	3.30
11/1/2012	11/1/2011	10/31/2012	247	0.3475	0.3422	0.0141	1.891	-0.02%	1.008	10.93	0.368	3.25
11/2/2012	11/2/2011	11/1/2012	247	0.3321	0.3266	0.0141	1.861	-0.01%	0.988	10.55	0.358	3.15
11/5/2012	11/5/2011	11/4/2012	245	0.3651	0.3598	0.0137	1.899	0.01%	1.032	11.26	0.390	3.52
11/6/2012	11/6/2011	11/5/2012	246	0.3598	0.3545	0.0137	1.882	0.00%	1.030	11.18	0.380	3.41

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Pacidual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
11/7/2012	11/7/2011	11/6/2012	247	0.3594	0.3542	0.0137	1.889	-0.01%	1.029	11.19	0.379	3.42
11/8/2012	11/8/2011	11/7/2012	247	0.3681	0.3629	0.0137	1.868	0.00%	1.031	11.40	0.377	3.48
11/9/2012	11/9/2011	11/8/2012	247	0.3672	0.3621	0.0137	1.885	0.00%	1.020	11.35	0.393	3.58
11/12/2012	11/12/2011	11/8/2012	245	0.3511	0.3457	0.0136	1.882	-0.02%	1.020	10.88	0.393	3.54
11/13/2012	11/13/2011	11/11/2012	246	0.3511	0.3455	0.0136	1.886	-0.02%	1.020	10.90	0.391	3.55
11/13/2012	11/14/2011	11/13/2012	247	0.3513	0.3459	0.0136	1.889	-0.02%	1.020	10.90	0.391	3.55
11/15/2012	11/15/2011	11/14/2012	247	0.3466	0.3413	0.0136	1.892	-0.02%	1.022	10.93	0.390	3.54
11/16/2012	11/16/2011	11/15/2012	247	0.3461	0.3407	0.0136	1.890	-0.01%	1.008	10.79	0.392	3.56
11/19/2012	11/19/2011	11/18/2012	245	0.3504	0.3450	0.0134	1.817	0.01%	1.008	10.75	0.372	3.47
11/20/2012	11/20/2011	11/19/2012	246	0.3451	0.3397	0.0134	1.842	0.00%	1.001	10.74	0.388	3.55
11/20/2012	11/21/2011	11/20/2012	247	0.3426	0.3372	0.0135	1.829	0.00%	1.001	10.74	0.376	3.46
11/23/2012	11/23/2011	11/22/2012	246	0.3420	0.3160	0.0133	1.805	0.00%	1.028	10.75	0.282	2.45
11/26/2012	11/26/2011	11/25/2012	245	0.3215	0.3149	0.0141	1.877	0.01%	1.035	10.40	0.284	2.47
11/20/2012	11/27/2011	11/26/2012	246	0.3209	0.3154	0.0141	1.879	0.00%	1.036	10.43	0.285	2.48
11/28/2012	11/28/2011	11/27/2012	247	0.3200	0.3144	0.0141	1.878	0.00%	1.033	10.43	0.285	2.48
11/29/2012	11/29/2011	11/28/2012	247	0.3075	0.3018	0.0141	1.878	0.00%	1.021	10.11	0.286	2.49
11/30/2012	11/30/2011	11/29/2012	247	0.3057	0.3000	0.0141	1.869	0.00%	1.019	10.05	0.291	2.53
12/3/2012	12/3/2011	12/2/2012	245	0.2878	0.2820	0.0142	1.883	0.00%	1.021	9.56	0.326	2.53
12/4/2012	12/4/2011	12/3/2012	246	0.2883	0.2825	0.0141	1.883	-0.01%	1.021	9.59	0.326	2.54
12/5/2012	12/5/2011	12/4/2012	247	0.2882	0.2823	0.0141	1.883	0.00%	1.019	9.59	0.333	2.61
12/6/2012	12/6/2011	12/5/2012	247	0.2848	0.2789	0.0141	1.882	0.00%	1.015	9.52	0.330	2.55
12/7/2012	12/7/2011	12/6/2012	247	0.2860	0.2801	0.0141	1.883	-0.01%	1.015	9.54	0.334	2.58
12/10/2012	12/10/2011	12/9/2012	245	0.2656	0.2595	0.0141	1.868	0.00%	0.979	9.01	0.327	2.50
12/11/2012	12/11/2011	12/10/2012	246	0.2649	0.2589	0.0141	1.864	0.01%	0.979	9.00	0.333	2.56
12/12/2012	12/12/2011	12/11/2012	247	0.2654	0.2594	0.0141	1.857	0.01%	0.983	9.05	0.326	2.50
12/13/2012	12/13/2011	12/12/2012	247	0.2634	0.2574	0.0141	1.859	0.01%	0.985	9.00	0.326	2.50
12/14/2012	12/14/2011	12/13/2012	247	0.2636	0.2576	0.0141	1.857	0.01%	0.988	9.01	0.326	2.49
12/17/2012	12/17/2011	12/16/2012	245	0.2597	0.2536	0.0142	1.823	-0.01%	0.981	8.89	0.318	2.42
12/18/2012	12/18/2011	12/17/2012	246	0.2607	0.2546	0.0141	1.835	-0.01%	0.980	8.93	0.318	2.42
12/19/2012	12/19/2011	12/18/2012	247	0.2615	0.2554	0.0141	1.835	-0.01%	0.979	8.97	0.318	2.43
12/20/2012	12/20/2011	12/19/2012	247	0.2605	0.2544	0.0141	1.834	-0.01%	0.979	8.95	0.317	2.42
12/21/2012	12/21/2011	12/20/2012	247	0.2545	0.2484	0.0141	1.802	-0.01%	0.988	8.80	0.316	2.42
12/24/2012	12/24/2011	12/23/2012	245	0.2519	0.2457	0.0139	1.835	-0.03%	0.974	8.77	0.279	2.14
12/26/2012	12/26/2011	12/25/2012	246	0.2521	0.2459	0.0139	1.836	-0.03%	0.974	8.79	0.279	2.15
12/27/2012	12/27/2011	12/26/2012	247	0.2529	0.2468	0.0139	1.836	-0.03%	0.975	8.83	0.280	2.16
12/28/2012	12/28/2011	12/27/2012	247	0.2530	0.2469	0.0139	1.837	-0.03%	0.975	8.83	0.280	2.16
12/31/2012	12/31/2011	12/30/2012	245	0.2502	0.2440	0.0139	1.769	-0.04%	0.973	8.74	0.271	2.08
1/2/2013	1/2/2012	1/1/2013	246	0.2516	0.2454	0.0139	1.770	-0.04%	0.969	8.79	0.272	2.10
1/3/2013	1/3/2012	1/2/2013	247	0.2535	0.2474	0.0139	1.767	-0.04%	0.956	8.86	0.274	2.11
1/4/2013	1/4/2012	1/3/2013	247	0.2769	0.2710	0.0136	1.825	-0.03%	1.009	9.49	0.231	1.83
1/7/2013	1/7/2012	1/6/2013	245	0.2884	0.2825	0.0133	1.869	-0.01%	1.012	9.72	0.239	1.92
1/8/2013	1/8/2012	1/7/2013	246	0.2884	0.2825	0.0133	1.867	-0.01%	1.012	9.74	0.234	1.90
1/9/2013	1/9/2012	1/8/2013	247	0.2872	0.2814	0.0133	1.868	0.00%	1.010	9.73	0.236	1.92
1/10/2013	1/10/2012	1/9/2013	247	0.2982	0.2924	0.0130	1.892	0.01%	1.014	9.96	0.254	2.11
1/11/2013	1/11/2012	1/10/2013	247	0.2959	0.2901	0.0130	1.891	0.01%	1.007	9.90	0.258	2.14
1/14/2013	1/14/2012	1/13/2013	245	0.2973	0.2914	0.0130	1.894	0.00%	1.008	9.90	0.252	2.09
1/15/2013	1/15/2012	1/14/2013	246	0.2967	0.2909	0.0130	1.891	0.00%	1.009	9.91	0.248	2.06

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
1/16/2013	1/16/2012	1/15/2013	247	0.2965	0.2908	0.0130	1.890	-0.01%	1.009	9.93	0.250	2.08
1/17/2013	1/17/2012	1/16/2013	248	0.2963	0.2906	0.0130	1.892	-0.01%	1.009	9.94	0.250	2.08
1/18/2013	1/18/2012	1/17/2013	248	0.2963	0.2906	0.0129	1.895	0.00%	1.010	9.96	0.240	2.02
1/22/2013	1/22/2012	1/21/2013	246	0.3028	0.2971	0.0129	1.828	0.01%	1.016	10.03	0.263	2.21
1/23/2013	1/23/2012	1/22/2013	247	0.3030	0.2973	0.0129	1.833	0.01%	1.016	10.06	0.263	2.21
1/24/2013	1/24/2012	1/23/2013	247	0.3092	0.3035	0.0127	1.874	0.00%	1.017	10.19	0.270	2.30
1/25/2013	1/25/2012	1/24/2013	247	0.3107	0.3050	0.0127	1.882	-0.01%	1.019	10.23	0.267	2.29
1/28/2013	1/28/2012	1/27/2013	245	0.3141	0.3084	0.0126	1.883	-0.02%	1.023	10.27	0.270	2.31
1/29/2013	1/29/2012	1/28/2013	246	0.3132	0.3075	0.0126	1.881	-0.02%	1.022	10.27	0.270	2.31
1/30/2013	1/30/2012	1/29/2013	247	0.3128	0.3071	0.0126	1.885	-0.02%	1.021	10.28	0.270	2.31
1/31/2013	1/31/2012	1/30/2013	247	0.3126	0.3070	0.0126	1.827	-0.02%	1.022	10.29	0.265	2.27
2/1/2013	2/1/2012	1/31/2013	247	0.3278	0.3223	0.0122	1.829	0.00%	1.019	10.61	0.286	2.53
2/4/2013	2/4/2012	2/3/2013	245	0.3301	0.3246	0.0121	1.833	-0.01%	1.024	10.67	0.262	2.30
2/5/2013	2/5/2012	2/4/2013	246	0.3289	0.3233	0.0121	1.830	-0.01%	1.018	10.67	0.261	2.30
2/6/2013	2/6/2012	2/5/2013	247	0.3254	0.3199	0.0121	1.834	-0.01%	1.008	10.59	0.267	2.35
2/7/2013	2/7/2012	2/6/2013	246	0.3254	0.3198	0.0121	1.833	-0.01%	1.008	10.57	0.266	2.33
2/8/2013	2/8/2012	2/7/2013	246	0.3249	0.3194	0.0121	1.839	-0.01%	1.007	10.56	0.265	2.32
2/11/2013	2/11/2012	2/10/2013	245	0.3221	0.3165	0.0122	1.843	-0.01%	1.003	10.47	0.264	2.30
2/12/2013	2/12/2012	2/11/2013	246	0.3220	0.3165	0.0122	1.843	-0.02%	1.004	10.50	0.263	2.29
2/13/2013	2/13/2012	2/12/2013	247	0.3219	0.3163	0.0121	1.842	-0.02%	1.003	10.51	0.265	2.31
2/14/2013	2/14/2012	2/13/2013	247	0.3216	0.3160	0.0121	1.833	-0.01%	1.005	10.51	0.264	2.30
2/15/2013	2/15/2012	2/14/2013	247	0.3243	0.3187	0.0121	1.851	-0.02%	1.006	10.55	0.275	2.40
2/19/2013	2/19/2012	2/18/2013	245	0.3296	0.3241	0.0121	1.862	-0.03%	1.015	10.64	0.273	2.40
2/20/2013	2/20/2012	2/19/2013	246	0.3295	0.3240	0.0120	1.863	-0.03%	1.011	10.64	0.280	2.51
2/21/2013	2/21/2012	2/20/2013	247	0.3277	0.3222	0.0120	1.860	-0.03%	1.004	10.62	0.274	2.46
2/22/2013	2/22/2012	2/21/2013	247	0.3278	0.3223	0.0120	1.863	-0.02%	1.003	10.64	0.275	2.43
2/25/2013	2/25/2012	2/24/2013	245	0.3293	0.3238	0.0121	1.855	-0.02%	1.006	10.64	0.270	2.35
2/26/2013	2/26/2012	2/25/2013	246	0.3323	0.3268	0.0120	1.855	-0.02%	1.002	10.74	0.271	2.36
2/27/2013	2/27/2012	2/26/2013	247	0.3309	0.3254	0.0120	1.854	-0.02%	0.999	10.73	0.272	2.37
2/28/2013	2/28/2012	2/27/2013	247	0.3327	0.3273	0.0120	1.851	-0.03%	0.996	10.77	0.272	2.38
3/1/2013	3/1/2012	2/28/2013	246	0.3299	0.3243	0.0120	1.850	-0.02%	0.993	10.72	0.250	2.18
3/4/2013	3/4/2012	3/3/2013	245	0.3303	0.3248	0.0120	1.849	-0.02%	0.996	10.71	0.248	2.15
3/5/2013	3/5/2012	3/4/2013	246	0.3301	0.3246	0.0120	1.849	-0.03%	0.995	10.73	0.249	2.17
3/6/2013	3/6/2012	3/5/2013	246	0.3292	0.3237	0.0120	1.851	-0.02%	0.990	10.71	0.245	2.13
3/7/2013	3/7/2012	3/6/2013	246	0.3256	0.3201	0.0120	1.851	-0.02%	0.989	10.62	0.246	2.15
3/8/2013	3/8/2012	3/7/2013	246	0.3260	0.3204	0.0120	1.852	-0.02%	0.990	10.63	0.246	2.15
3/11/2013	3/11/2012	3/10/2013	245	0.3289	0.3234	0.0120	1.830	-0.02%	0.994	10.66	0.257	2.24
3/12/2013	3/12/2012	3/11/2013	246	0.3282	0.3227	0.0119	1.829	-0.02%	0.993	10.66	0.256	2.23
3/13/2013	3/13/2012	3/12/2013	246	0.3296	0.3240	0.0119	1.841	-0.02%	0.993	10.70	0.253	2.22
3/14/2013	3/14/2012	3/13/2013	246	0.3327	0.3272	0.0119	1.845	-0.01%	1.006	10.77	0.260	2.28
3/15/2013	3/15/2012	3/14/2013	246	0.3330	0.3275	0.0119	1.838	-0.01%	1.005	10.77	0.263	2.31
3/18/2013	3/18/2012	3/17/2013	245	0.3349	0.3294	0.0117	1.813	-0.02%	0.997	10.80	0.257	2.28
3/19/2013	3/19/2012	3/18/2013	246	0.3335	0.3280	0.0117	1.809	-0.01%	0.994	10.79	0.254	2.27
3/20/2013	3/20/2012	3/19/2013	246	0.3331	0.3276	0.0117	1.809	-0.01%	0.993	10.78	0.258	2.29
3/21/2013	3/21/2012	3/20/2013	246	0.3329	0.3274	0.0117	1.807	-0.01%	0.992 0.991	10.77	0.257	2.28
3/22/2013	3/22/2012	3/21/2013	246 245	0.3340	0.3285	0.0117	1.792	-0.01%		10.79	0.260	2.32
3/25/2013	3/25/2012	3/24/2013	245	0.3339	0.3284	0.0117	1.798	0.00%	0.988	10.76	0.264	2.36

-	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
3/26/2013	3/26/2012	3/25/2013	246	0.3349	0.3294	0.0117	1.805	-0.01%	0.990	10.80	0.267	2.39
3/27/2013	3/27/2012	3/26/2013	246	0.3267	0.3212	0.0118	1.787	-0.01%	0.981	10.60	0.267	2.35
3/28/2013	3/28/2012	3/27/2013	246	0.3261	0.3206	0.0118	1.807	-0.01%	0.981	10.59	0.268	2.35
4/1/2013	4/1/2012	3/31/2013	244	0.3240	0.3184	0.0121	1.751	0.01%	0.994	10.47	0.284	2.44
4/2/2013	4/2/2012	4/1/2013	245	0.3250	0.3194	0.0120	1.813	0.01%	0.996	10.51	0.285	2.45
4/3/2013	4/3/2012	4/2/2013	245	0.3246	0.3190	0.0120	1.820	0.01%	0.994	10.49	0.289	2.49
4/4/2013	4/4/2012	4/3/2013	245	0.3279	0.3224	0.0120	1.783	0.00%	1.000	10.59	0.284	2.45
4/5/2013	4/5/2012	4/4/2013	245	0.3191	0.3134	0.0119	1.793	0.01%	0.976	10.44	0.243	2.11
4/8/2013	4/8/2012	4/7/2013	245	0.3202	0.3146	0.0119	1.792	0.01%	0.978	10.46	0.245	2.14
4/9/2013	4/9/2012	4/8/2013	246	0.3191	0.3135	0.0119	1.790	0.01%	0.974	10.45	0.249	2.18
4/10/2013	4/10/2012	4/9/2013	246	0.3141	0.3085	0.0119	1.786	0.01%	0.967	10.33	0.244	2.13
4/11/2013	4/11/2012	4/10/2013	246	0.3110	0.3053	0.0119	1.782	0.00%	0.967	10.25	0.245	2.14
4/12/2013	4/12/2012	4/11/2013	246	0.3085	0.3028	0.0118	1.783	0.00%	0.960	10.20	0.241	2.11
4/15/2013	4/15/2012	4/14/2013	245	0.3044	0.2986	0.0119	1.783	0.00%	0.960	10.07	0.243	2.10
4/16/2013	4/16/2012	4/15/2013	246	0.2937	0.2879	0.0119	1.773	0.01%	0.926	9.84	0.241	2.07
4/17/2013	4/17/2012	4/16/2013	246	0.2931	0.2873	0.0119	1.782	0.01%	0.920	9.82	0.243	2.09
4/18/2013	4/18/2012	4/17/2013	246	0.2867	0.2809	0.0119	1.796	0.00%	0.901	9.67	0.238	2.05
4/19/2013	4/19/2012	4/18/2013	246	0.2911	0.2852	0.0119	1.802	-0.01%	0.908	9.77	0.241	2.09
4/22/2013	4/22/2012	4/21/2013	245	0.2974	0.2916	0.0118	1.796	-0.01%	0.917	9.94	0.218	1.90
4/23/2013	4/23/2012	4/22/2013	246	0.2955	0.2897	0.0118	1.793	-0.01%	0.913	9.90	0.225	1.96
4/24/2013	4/24/2012	4/23/2013	246	0.2957	0.2899	0.0118	1.799	0.00%	0.914	9.91	0.224	1.95
4/25/2013	4/25/2012	4/24/2013	246	0.2957	0.2899	0.0118	1.800	-0.01%	0.912	9.90	0.221	1.99
4/26/2013	4/26/2012	4/25/2013	246	0.2962	0.2904	0.0118	1.769	0.00%	0.918	9.89	0.235	2.11
4/29/2013	4/29/2012	4/28/2013	245	0.2916	0.2857	0.0117	1.768	-0.01%	0.905	9.78	0.218	1.97
4/30/2013	4/30/2012	4/29/2013	246	0.2921	0.2863	0.0117	1.779	-0.01%	0.905	9.82	0.218	1.97
5/1/2013	5/1/2012	4/30/2013	246	0.2818	0.2759	0.0120	1.750	-0.02%	0.899	9.53	0.239	2.11
5/2/2013	5/2/2012	5/1/2013	246	0.2868	0.2809	0.0119	1.796	-0.02%	0.905	9.65	0.242	2.14
5/3/2013	5/3/2012	5/2/2013	247	0.2905	0.2846	0.0119	1.798	-0.01%	0.912	9.75	0.249	2.21
5/6/2013	5/6/2012	5/5/2013	245	0.2807	0.2748	0.0119	1.806	0.00%	0.890	9.43	0.263	2.33
5/7/2013	5/7/2012	5/6/2013	246	0.2808	0.2749	0.0119	1.807	0.00%	0.890	9.45	0.264	2.34
5/8/2013	5/8/2012	5/7/2013	246	0.2815	0.2756	0.0119	1.799	0.00%	0.892	9.47	0.264	2.34
5/9/2013	5/9/2012	5/8/2013	246	0.2831	0.2772	0.0119	1.798	0.01%	0.891	9.47	0.282	2.51
5/10/2013	5/10/2012	5/9/2013	246	0.2829	0.2770	0.0119	1.793	0.01%	0.891	9.45	0.286	2.56
5/13/2013	5/13/2012	5/12/2013	245	0.2859	0.2800	0.0119	1.784	0.01%	0.895	9.48	0.293	2.64
5/14/2013	5/14/2012	5/13/2013	246	0.2803	0.2744	0.0120	1.798	0.00%	0.896	9.42	0.274	2.45
5/15/2013	5/15/2012	5/14/2013	246	0.2744	0.2684	0.0120	1.807	0.00%	0.879	9.24	0.285	2.54
5/16/2013	5/16/2012	5/15/2013	246	0.2721	0.2661	0.0120	1.805	0.00%	0.875	9.19	0.283	2.53
5/17/2013	5/17/2012	5/16/2013	246	0.2728	0.2668	0.0120	1.804	0.00%	0.876	9.20	0.285	2.54
5/20/2013	5/20/2012	5/19/2013	245	0.2586	0.2524	0.0121	1.782	-0.01%	0.854	8.80	0.299	2.64
5/21/2013	5/21/2012	5/20/2013	246	0.2540	0.2479	0.0123	1.728	-0.02%	0.858	8.72	0.296	2.58
5/22/2013	5/22/2012	5/21/2013	246	0.2506	0.2444	0.0123	1.744	-0.02%	0.858	8.66	0.284	2.52
5/23/2013	5/23/2012	5/22/2013	246	0.2538	0.2477	0.0123	1.741	-0.02%	0.864	8.73	0.287	2.53
5/24/2013	5/24/2012	5/23/2013	246	0.2505	0.2443	0.0124	1.744	-0.01%	0.859	8.64	0.292	2.56
5/28/2013	5/28/2012	5/27/2013	245	0.2496	0.2434	0.0124	1.749	-0.01%	0.856	8.62	0.285	2.50
5/29/2013	5/29/2012	5/28/2013	246	0.2498	0.2437	0.0123	1.749	-0.01%	0.856	8.64	0.285	2.50
5/30/2013	5/30/2012	5/29/2013	246	0.2503	0.2441	0.0123	1.743	-0.02%	0.859	8.65	0.286	2.51
5/31/2013	5/31/2012	5/30/2013	246	0.2432	0.2369	0.0123	1.748	-0.01%	0.847	8.49	0.281	2.46

-	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
6/3/2013	6/3/2012	6/2/2013	245	0.2399	0.2337	0.0123	1.740	-0.01%	0.848	8.38	0.282	2.47
6/4/2013	6/4/2012	6/3/2013	246	0.2329	0.2266	0.0124	1.743	-0.01%	0.841	8.27	0.264	2.31
6/5/2013	6/5/2012	6/4/2013	246	0.2359	0.2296	0.0124	1.729	-0.02%	0.847	8.33	0.270	2.37
6/6/2013	6/6/2012	6/5/2013	246	0.2306	0.2242	0.0124	1.748	-0.02%	0.827	8.20	0.267	2.35
6/7/2013	6/7/2012	6/6/2013	246	0.2200	0.2136	0.0123	1.757	-0.02%	0.802	7.88	0.288	2.54
6/10/2013	6/10/2012	6/9/2013	245	0.2204	0.2139	0.0123	1.756	-0.02%	0.800	7.88	0.288	2.52
6/11/2013	6/11/2012	6/10/2013	246	0.2201	0.2137	0.0123	1.755	-0.02%	0.799	7.87	0.292	2.56
6/12/2013	6/12/2012	6/11/2013	246	0.2180	0.2115	0.0123	1.763	-0.01%	0.796	7.83	0.289	2.55
6/13/2013	6/13/2012	6/12/2013	246	0.2115	0.2051	0.0124	1.766	0.00%	0.783	7.64	0.298	2.61
6/14/2013	6/14/2012	6/13/2013	246	0.2206	0.2142	0.0125	1.740	0.01%	0.803	7.83	0.315	2.74
6/17/2013	6/17/2012	6/16/2013	245	0.2174	0.2109	0.0125	1.770	0.00%	0.803	7.75	0.307	2.67
6/18/2013	6/18/2012	6/17/2013	246	0.2174	0.2109	0.0125	1.773	0.00%	0.802	7.77	0.306	2.67
6/19/2013	6/19/2012	6/18/2013	246	0.2150	0.2086	0.0125	1.773	-0.01%	0.793	7.69	0.313	2.74
6/20/2013	6/20/2012	6/19/2013	246	0.2100	0.2035	0.0125	1.792	-0.01%	0.776	7.57	0.309	2.70
6/21/2013	6/21/2012	6/20/2013	246	0.2107	0.2042	0.0125	1.785	-0.01%	0.761	7.58	0.312	2.73
6/24/2013	6/24/2012	6/23/2013	245	0.2039	0.1973	0.0125	1.790	0.00%	0.753	7.36	0.319	2.80
6/25/2013	6/25/2012	6/24/2013	246	0.2060	0.1995	0.0125	1.790	-0.01%	0.755	7.43	0.318	2.80
6/26/2013	6/26/2012	6/25/2013	246	0.1984	0.1918	0.0125	1.783	-0.01%	0.738	7.20	0.328	2.89
6/27/2013	6/27/2012	6/26/2013	246	0.1981	0.1915	0.0125	1.785	-0.01%	0.735	7.18	0.332	2.92
6/28/2013	6/28/2012	6/27/2013	246	0.1985	0.1919	0.0125	1.787	-0.01%	0.735	7.18	0.335	2.95
7/1/2013	7/1/2012	6/30/2013	245	0.1778	0.1710	0.0125	1.784	-0.01%	0.688	6.61	0.334	2.94
7/2/2013	7/2/2012	7/1/2013	246	0.1794	0.1727	0.0125	1.779	-0.01%	0.692	6.66	0.337	2.97
7/3/2013	7/3/2012	7/2/2013	246	0.1771	0.1703	0.0125	1.774	-0.01%	0.690	6.63	0.327	2.88
7/5/2013	7/5/2012	7/4/2013	246	0.1770	0.1702	0.0125	1.777	-0.01%	0.691	6.63	0.327	2.88
7/8/2013	7/8/2012	7/7/2013	245	0.1763	0.1695	0.0125	1.765	0.00%	0.690	6.60	0.327	2.87
7/9/2013	7/9/2012	7/8/2013	246	0.1755	0.1687	0.0125	1.765	0.00%	0.688	6.60	0.326	2.87
7/10/2013	7/10/2012	7/9/2013	246	0.1708	0.1640	0.0126	1.744	-0.03%	0.676	6.42	0.341	2.98
7/11/2013	7/11/2012	7/10/2013	246	0.1691	0.1623	0.0127	1.715	-0.04%	0.678	6.39	0.339	2.94
7/12/2013	7/12/2012	7/11/2013	246	0.1752	0.1684	0.0126	1.745	-0.02%	0.686	6.53	0.343	2.99
7/15/2013	7/15/2012	7/14/2013	245	0.1702	0.1633	0.0126	1.760	-0.03%	0.663	6.29	0.364	3.17
7/16/2013	7/16/2012	7/15/2013	246	0.1702	0.1633	0.0125	1.760	-0.03%	0.663	6.30	0.363	3.18
7/17/2013	7/17/2012	7/16/2013	246	0.1717	0.1649	0.0124	1.788	-0.03%	0.665	6.37	0.356	3.13
7/18/2013	7/18/2012	7/17/2013	246	0.1689	0.1621	0.0124	1.780	-0.04%	0.657	6.30	0.352	3.11
7/19/2013	7/19/2012	7/18/2013	246	0.1689	0.1620	0.0124	1.786	-0.03%	0.662	6.35	0.342	3.01
7/22/2013	7/22/2012	7/21/2013	245	0.1597	0.1527	0.0123	1.796	-0.02%	0.643	6.17	0.321	2.82
7/23/2013	7/23/2012	7/22/2013	246	0.1612	0.1543	0.0124	1.799	-0.01%	0.644	6.17	0.334	2.94
7/24/2013	7/24/2012	7/23/2013	246	0.1586	0.1517	0.0124	1.808	-0.01%	0.640	6.11	0.331	2.91
7/25/2013	7/25/2012	7/24/2013	246	0.1598	0.1529	0.0124	1.803	-0.01%	0.644	6.13	0.335	2.95
7/26/2013	7/26/2012	7/25/2013	246	0.1558	0.1489	0.0124	1.798	-0.02%	0.645	6.14	0.303	2.67
7/29/2013	7/29/2012	7/28/2013	245	0.1581	0.1511	0.0124	1.793	-0.02%	0.666	6.20	0.313	2.64
7/30/2013	7/30/2012	7/29/2013	246	0.1567	0.1498	0.0124	1.792	-0.01%	0.663	6.18	0.312	2.64
7/31/2013	7/31/2012	7/30/2013	246	0.1575	0.1506	0.0123	1.785	-0.01%	0.663	6.19	0.316	2.67
8/1/2013	8/1/2012	7/31/2013	246	0.1573	0.1504	0.0123	1.790	-0.01%	0.659	6.15	0.325	2.74
8/2/2013	8/2/2012	8/1/2013	245	0.1567	0.1498	0.0123	1.793	0.00%	0.657	6.12	0.325	2.74
8/5/2013	8/5/2012	8/4/2013	245	0.1573	0.1503	0.0124	1.785	0.00%	0.668	6.15	0.322	2.72
8/6/2013	8/6/2012	8/5/2013	246	0.1573	0.1504	0.0123	1.788	0.00%	0.668	6.16	0.323	2.73
8/7/2013	8/7/2012	8/6/2013	246	0.1589	0.1519	0.0124	1.784	-0.01%	0.674	6.21	0.321	2.70

	Control Period	Control Period			Model	Standard	Durbin		Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
8/8/2013	8/8/2012	8/7/2013	246	0.1566	0.1496	0.0124	1.789	-0.01%	0.669	6.16	0.318	2.68
8/9/2013	8/9/2012	8/8/2013	246	0.1584	0.1515	0.0124	1.758	0.01%	0.678	6.16	0.316	2.79
8/12/2013	8/12/2012	8/11/2013	245	0.1575	0.1505	0.0125	1.764	0.01%	0.676	6.13	0.334	2.77
8/13/2013	8/13/2012	8/12/2013	246	0.1579	0.1510	0.0126	1.767	0.02%	0.677	6.15	0.334	2.78
8/14/2013	8/14/2012	8/13/2013	246	0.1573	0.1514	0.0125	1.778	0.02%	0.671	6.12	0.343	2.87
8/15/2013	8/15/2012	8/14/2013	246	0.1580	0.1511	0.0125	1.769	0.02%	0.675	6.16	0.343	2.77
8/16/2013	8/16/2012	8/15/2013	246	0.1585	0.1516	0.0125	1.772	0.02%	0.672	6.18	0.331	2.77
8/19/2013	8/19/2012	8/18/2013	245	0.1585	0.1555	0.0125	1.767	0.02%	0.670	6.17	0.328	2.73
8/20/2013	8/20/2012	8/19/2013	246	0.1623	0.1548	0.0125	1.769	0.01%	0.665	6.14	0.364	3.03
8/21/2013	8/21/2012	8/20/2013	246	0.1602	0.1533	0.0125	1.766	0.02%	0.667	6.15	0.350	2.92
8/22/2013	8/22/2012	8/21/2013	246	0.1611	0.1542	0.0125	1.770	0.02%	0.671	6.19	0.336	2.89
8/23/2013	8/23/2012	8/22/2013	246	0.1619	0.1550	0.0125	1.766	0.01%	0.673	6.22	0.346	2.88
8/26/2013	8/26/2012	8/25/2013	245	0.1662	0.1594	0.0125	1.761	0.01%	0.687	6.34	0.340	2.84
8/27/2013	8/27/2012	8/26/2013	246	0.1651	0.1582	0.0125	1.758	0.01%	0.683	6.31	0.343	2.87
8/28/2013	8/28/2012	8/27/2013	246	0.1031	0.1565	0.0125	1.765	0.01%	0.696	6.50	0.343	2.95
8/29/2013	8/29/2012	8/28/2013	246	0.1739	0.1671	0.0123	1.770	0.01%	0.698	6.53	0.336	2.92
8/30/2013	8/30/2012	8/29/2013	246	0.1739	0.1672	0.0124	1.781	-0.01%	0.698	6.58	0.340	2.82
9/3/2013	9/3/2012	9/2/2013	245	0.1740	0.1674	0.0124	1.787	-0.01%	0.700	6.56	0.336	2.84
9/4/2013	9/4/2012	9/3/2013	245	0.1743	0.1649	0.0124	1.777	-0.01%	0.700	6.52	0.332	2.80
9/5/2013	9/5/2012	9/4/2013	246	0.1718	0.1669	0.0124	1.796	-0.02%	0.705	6.62	0.332	2.68
9/6/2013	9/6/2012	9/5/2013	246	0.1757	0.1685	0.0124	1.805	-0.02%	0.705	6.66	0.319	2.71
9/9/2013	9/9/2012	9/8/2013	245	0.1733	0.1661	0.0123	1.805	-0.03%	0.705	6.57	0.320	2.73
9/10/2013	9/10/2012	9/9/2013	243	0.1729	0.1678	0.0123	1.804	-0.02%	0.707	6.63	0.321	2.74
9/11/2013	9/11/2012	9/10/2013	246	0.1740	0.1666	0.0123	1.791	-0.02%	0.707	6.60	0.321	2.74
9/12/2013	9/12/2012	9/11/2013	246	0.1734	0.1719	0.0123	1.797	0.00%	0.704	6.74	0.315	2.73
9/13/2013	9/13/2012	9/11/2013	246	0.1786	0.1728	0.0121	1.793	-0.01%	0.703	6.76	0.317	2.75
9/16/2013	9/16/2012	9/15/2013	245	0.1789	0.1721	0.0121	1.791	-0.01%	0.711	6.77	0.317	2.64
9/17/2013	9/17/2012	9/16/2013	245	0.1789	0.1734	0.0121	1.788	0.00%	0.721	6.81	0.307	2.65
9/18/2013	9/18/2012	9/17/2013	246	0.1822	0.1755	0.0121	1.792	-0.01%	0.723	6.88	0.307	2.62
9/19/2013	9/19/2012	9/18/2013	246	0.1823	0.1755	0.0121	1.796	-0.01%	0.726	6.87	0.304	2.63
9/20/2013	9/20/2012	9/19/2013	246	0.1828	0.1760	0.0121	1.795	-0.01%	0.727	6.88	0.304	2.64
9/23/2013	9/23/2012	9/22/2013	245	0.1828	0.1765	0.0121	1.798	-0.01%	0.725	6.87	0.309	2.67
9/24/2013	9/24/2012	9/23/2013	246	0.1843	0.1775	0.0121	1.797	-0.01%	0.728	6.91	0.309	2.67
9/25/2013	9/25/2012	9/24/2013	246	0.1844	0.1777	0.0121	1.795	-0.01%	0.729	6.92	0.309	2.67
9/26/2013	9/26/2012	9/25/2013	246	0.1835	0.1768	0.0121	1.780	-0.01%	0.735	6.94	0.295	2.55
9/27/2013	9/27/2012	9/26/2013	246	0.1807	0.1740	0.0121	1.790	-0.01%	0.727	6.87	0.294	2.54
9/30/2013	9/30/2012	9/29/2013	245	0.1787	0.1719	0.0121	1.791	-0.01%	0.724	6.80	0.293	2.53
10/1/2013	10/1/2012	9/30/2013	246	0.1782	0.1714	0.0121	1.791	-0.01%	0.716	6.75	0.306	2.67
10/2/2013	10/2/2012	10/1/2013	246	0.1702	0.1747	0.0121	1.772	0.00%	0.729	6.84	0.306	2.66
10/3/2013	10/3/2012	10/2/2013	246	0.1819	0.1752	0.0122	1.772	0.00%	0.730	6.85	0.308	2.67
10/4/2013	10/4/2012	10/3/2013	246	0.1873	0.1806	0.0122	1.720	-0.01%	0.722	6.97	0.307	2.73
10/7/2013	10/7/2012	10/6/2013	245	0.1869	0.1802	0.0119	1.794	-0.01%	0.722	6.94	0.307	2.72
10/8/2013	10/8/2012	10/7/2013	246	0.1889	0.1822	0.0119	1.799	-0.01%	0.720	7.01	0.307	2.73
10/9/2013	10/9/2012	10/8/2013	246	0.1913	0.1846	0.0119	1.796	-0.02%	0.727	7.01	0.307	2.69
10/9/2013	10/9/2012	10/9/2013	246	0.1913	0.1682	0.0119	1.810	0.00%	0.727	6.88	0.303	2.05
10/10/2013	10/10/2012	10/9/2013	246	0.1799	0.1732	0.0118	1.810	0.00%	0.707	7.01	0.247	2.03
10/11/2013	10/11/2012	10/13/2013	245	0.1799	0.1718	0.0118	1.811	0.00%	0.705	6.97	0.243	2.04
10/14/2013	10/14/2012	10/15/2015	245	0.1/86	U.1/18	0.0119	1.811	0.00%	0.705	0.97	0.242	2.01

D /	Control Period	Control Period	N OI	M 1100	Model	Standard	Durbin	T 4	Ma	rket	Industry	Residual
Date	Begin	End	Num Obs	Model R2	Adjusted R2	Error	Watson	Intercept	Coefficient	t Statistic	Coefficient	t Statistic
10/15/2013	10/15/2012	10/14/2013	246	0.1796	0.1728	0.0118	1.814	0.00%	0.707	7.00	0.246	2.05
10/16/2013	10/16/2012	10/15/2013	246	0.1786	0.1719	0.0118	1.806	0.01%	0.704	6.97	0.246	2.05
10/17/2013	10/17/2012	10/16/2013	246	0.1751	0.1683	0.0117	1.809	0.00%	0.689	6.89	0.240	2.01
10/18/2013	10/18/2012	10/17/2013	246	0.1740	0.1672	0.0117	1.807	0.00%	0.690	6.91	0.223	1.84
10/21/2013	10/21/2012	10/20/2013	245	0.1839	0.1772	0.0116	1.798	0.00%	0.715	7.17	0.215	1.78
10/22/2013	10/22/2012	10/21/2013	246	0.1840	0.1773	0.0116	1.799	0.00%	0.715	7.18	0.216	1.79
10/23/2013	10/23/2012	10/22/2013	246	0.1840	0.1773	0.0116	1.810	-0.01%	0.714	7.20	0.205	1.71
10/24/2013	10/24/2012	10/23/2013	246	0.1852	0.1785	0.0115	1.799	-0.01%	0.718	7.20	0.219	1.86
10/25/2013	10/25/2012	10/24/2013	246	0.1838	0.1771	0.0115	1.798	0.00%	0.716	7.18	0.209	1.79
10/28/2013	10/28/2012	10/27/2013	245	0.1849	0.1781	0.0116	1.793	0.00%	0.718	7.19	0.210	1.79
10/29/2013	10/29/2012	10/28/2013	246	0.1848	0.1781	0.0115	1.793	0.00%	0.718	7.20	0.209	1.79
10/30/2013	10/30/2012	10/29/2013	247	0.1837	0.1770	0.0115	1.793	-0.01%	0.715	7.19	0.208	1.79
10/31/2013	10/31/2012	10/30/2013	248	0.1863	0.1797	0.0115	1.786	-0.01%	0.721	7.26	0.216	1.86
11/1/2013	11/1/2012	10/31/2013	247	0.1887	0.1821	0.0115	1.797	-0.02%	0.722	7.29	0.220	1.90
11/4/2013	11/4/2012	11/3/2013	247	0.1814	0.1747	0.0117	1.736	-0.03%	0.715	7.09	0.228	1.94
11/5/2013	11/5/2012	11/4/2013	248	0.1821	0.1754	0.0116	1.784	-0.03%	0.718	7.12	0.231	1.97
11/6/2013	11/6/2012	11/5/2013	248	0.1887	0.1821	0.0116	1.811	-0.03%	0.726	7.23	0.255	2.18
11/7/2013	11/7/2012	11/6/2013	248	0.1889	0.1823	0.0116	1.822	-0.03%	0.727	7.23	0.256	2.19
11/8/2013	11/8/2012	11/7/2013	248	0.1845	0.1778	0.0116	1.817	-0.03%	0.730	7.14	0.246	2.10
11/11/2013	11/11/2012	11/10/2013	247	0.1818	0.1751	0.0116	1.811	-0.03%	0.723	7.06	0.247	2.10
11/12/2013	11/12/2012	11/11/2013	248	0.1810	0.1743	0.0117	1.812	-0.02%	0.722	7.05	0.248	2.11
11/13/2013	11/13/2012	11/12/2013	248	0.1767	0.1700	0.0117	1.780	-0.01%	0.717	6.95	0.244	2.06
11/14/2013	11/14/2012	11/13/2013	248	0.1769	0.1702	0.0117	1.781	-0.01%	0.716	6.96	0.242	2.05
11/15/2013	11/15/2012	11/14/2013	248	0.1790	0.1723	0.0117	1.785	-0.01%	0.726	7.01	0.244	2.06
11/18/2013	11/18/2012	11/17/2013	247	0.1801	0.1734	0.0116	1.766	-0.02%	0.721	7.02	0.245	2.09
11/19/2013	11/19/2012	11/18/2013	248	0.1824	0.1758	0.0116	1.767	-0.03%	0.726	7.07	0.253	2.17
11/20/2013	11/20/2012	11/19/2013	248	0.1875	0.1808	0.0116	1.763	-0.03%	0.753	7.23	0.241	2.06
11/21/2013	11/21/2012	11/20/2013	248	0.1921	0.1855	0.0116	1.568	-0.03%	0.758	7.29	0.265	2.26
11/22/2013	11/22/2012	11/21/2013	248	0.2301	0.2238	0.0108	1.708	-0.05%	0.755	7.84	0.377	3.43
11/25/2013	11/25/2012	11/24/2013	248	0.2234	0.2171	0.0108	1.715	-0.06%	0.742	7.68	0.374	3.40
11/26/2013	11/26/2012	11/25/2013	249	0.2237	0.2174	0.0107	1.716	-0.06%	0.742	7.70	0.374	3.41
11/27/2013	11/27/2012	11/26/2013	249	0.2230	0.2167	0.0107	1.712	-0.06%	0.741	7.69	0.373	3.39
11/29/2013	11/28/2012	11/27/2013	249	0.2248	0.2185	0.0107	1.705	-0.06%	0.747	7.72	0.377	3.43
Thereafter	11/28/2012	11/27/2013	249	0.2248	0.2185	0.0107	1.705	-0.06%	0.747	7.72	0.377	3.43

Thoratec Corp.

Companies in the BI Cardiology Competitive Peers Index as of 8/6/2014

Source: Bloomberg

Number	Company Name	Bloomberg Symbol
1	ABIOMED Inc	ABMD US Equity
2	AtriCure Inc	ATRC US Equity
3	BioTelemetry Inc	BEAT US Equity
4	Boston Scientific Corp	BSX US Equity
5	CR Bard Inc	BCR US Equity
6	Edwards Lifesciences Corp	EW US Equity
7	HeartWare International Inc	HTWR US Equity
8	Integer Holdings Corp	ITGR US Equity
9	LeMaitre Vascular Inc	LMAT US Equity
10	Medtronic PLC	MDT US Equity
11	St Jude Medical Inc	STJ US Equity
12	Surmodics Inc	SRDX US Equity
13	Vascular Solutions Inc	VASC US Equity
14	Volcano Corp	VOLC US Equity
15	World Heart Corp	WHRT US Equity
16	Zoll Medical Corp	ZOLL US Equity

Summary of Thoratec's Stock Price Reaction on Event Dates

Event Date	Impact Date	Event	Actual Return	Residual Return	Confidence Level
8/3/2011	8/4/2011	Q2-2011 Earnings Release	-4.17%	0.18%	5.7%
11/1/2011	11/2/2011	Q3-2011 Earnings Release	-12.70%	-14.43%	100.0% **
2/8/2012	2/9/2012	Q4/FY-2011 Earnings Release	12.04%	12.17%	100.0% **
5/1/2012	5/2/2012	Q1-2012 Earnings Release	-0.12%	-0.04%	2.2%
8/1/2012	8/2/2012	Q2-2012 Earnings Release	-6.12%	-5.27%	100.0% **
11/1/2012	11/2/2012	Q3-2012 Earnings Release	1.58%	2.36%	90.5% *
2/5/2013	2/6/2013	Q4/FY-2012 Earnings Release	0.16%	-0.02%	1.1%
5/2/2013	5/3/2013	Q1-2013 Earnings Release	-10.76%	-11.55%	100.0% **
7/31/2013	8/1/2013	Q2-2013 Earnings Release	9.39%	8.63%	100.0% **
10/30/2013	10/31/2013	Q3-2013 Earnings Release	9.81%	10.18%	100.0% **
11/27/2013	11/29/2013	Studies Links to HeartMate II to Blood Clots	-6.53%	-6.28%	100.0% **
2/4/2014	2/5/2014	Q4/FY-2013 Earnings Release	1.69%	1.42%	81.2%
5/6/2014	5/7/2014	Q1-2014 Earnings Release	-5.51%	-5.66%	100.0% **
8/6/2014	8/7/2014	Q2-2014 Earnings Release	-30.18%	-29.32%	100.0% **

[&]quot;**" and "*" indicates statistically significant at the 95% and 90% confidence level, respectively.

Impact Date	Event
8/4/2011	After market close on August 3, 2011, Thoratec released its second-quarter 2011 financial results. ¹ For the quarter, the Company reported revenues of \$111.2 million, GAAP net income of \$17.5 million, or \$0.29 per share, and non-GAAP net income of \$27.4 million, or \$0.44 per share. This compares to analysts' consensus of \$104.8 million in revenue and non-GAAP EPS of \$0.35. ² In its press release, then-President and Chief Executive Officer Gary F. Burbach stated:
	We had an excellent quarter with double digit revenue growth both year-over-year and sequentially, driven by the continued market penetration of the HeartMate II(R) LVAS (Left Ventricular Assist System) for Destination Therapy (DT).
	We were particularly pleased with HeartMate II unit growth of 21 percent in the U.S. and 20 percent internationally, demonstrating healthy underlying market trends and HeartMate II's strong competitive position. This growth is being fueled by the compelling long-term patient outcomes achieved with the device, as well as the impact of our programs to facilitate referral activity, support capacity expansion at existing centers, and foster VAD programs at new centers
	During the quarter, we expanded our field organization to support our broad array of market development efforts, and we continued to hit important milestones in our product development and clinical programs. For example, the full commercial launch of our sealed grafts for the HeartMate II, which occurred late in the first quarter, has gone very well, generating highly positive feedback from the clinical community in terms of ease of use, reduction in operating room time and reduced rates of peri-operative bleeding.
	The Company also increased its guidance for 2011, stating that it now expected revenues to be in the range of \$422–\$430 million, GAAP net income per diluted share to be in the range of \$1.05–\$1.15, and non-GAAP net income per diluted share to be in the range of \$1.40–\$1.50.³ Previously it guided revenues of \$410–\$425 million, GAAP net income per diluted share of \$1.02–\$1.12, and non-GAAP net income per diluted share of \$1.35–\$1.45.⁴

¹ PR Newswire, "Thoratec Reports Second Quarter Revenue Increase of 17 Percent," August 3, 2011, 4:02 PM.

² Theflyonthewall.com, "Thoratec reports Q2 EPS 44c vs. consensus 35c," August 3, 2011.

³ PR Newswire, "Thoratec Reports Second Quarter Revenue Increase of 17 Percent," August 3, 2011, 4:02 PM.

⁴ *PR Newswire*, "Thoratec Reports First Quarter 2011 Results; - Sequential VAD Unit Growth of 13% in North America; - Q1'2011 Revenues of \$99.5 million, GAAP Net Income per Diluted Share of \$0.27, and Non-GAAP Net Income per Diluted Share of \$0.34," May 3, 2011, 4:02 PM.

Impact Date	Event
	In a separate press release after market close that day, the Company announced that it had acquired Levitronix LLC for an upfront cash payment of \$110 million and potential future cash earnout payments of up to \$40M tied to the revenue attributable to the products acquired through 2015." In its press release, the Company stated:
	This transaction solidifies Thoratec's position as the leading, full-line provider of mechanical circulatory support products for both acute and chronic needs, advancing the company's mission of delivering superior therapies to a broad population of heart failure patients.
	The acquisition of Levitronix Medical follows a successful strategic partnership between the two companies. Since 2006, Thoratec has provided distribution and clinical support in the U.S. for the CentriMag(R) Acute Circulatory Support System, Levitronix Medical's flagship product, under an agreement that was scheduled to expire at the end of 2011. Levitronix Medical and Thoratec have also collaborated on the development of the fully magnetically levitated motor technology employed in the HeartMate(R) III left ventricular assist system, which is currently in preclinical testing.
	Levitronix Medical has built a leadership position in magnetically levitated, bearingless mechanical circulatory support, with current and pipeline programs in cardiac and respiratory assist. CentriMag, Levitronix Medical's lead commercial product, is an extracorporeal, centrifugal flow blood pump used for short-term surgical support. Levitronix Medical also manufactures and markets an acute pediatric surgical support system, known as PediMag in the U.S. and PediVAS in international markets.
	"The acquisition of Levitronix Medical represents an important strategic step for Thoratec, enabling us to provide customers with leading mechanical circulatory support solutions for patients in both acute and chronic heart failure, while also bolstering our technological capabilities in the realm of bearingless motor design," Burbach continued. "Moreover, we expect the acquisition to provide Thoratec and its shareholders with important financial benefits, including incremental product sales on a global basis as well as earnings accretion beginning in 2012."
	The transaction announced today does not include Levitronix's fluid handling business, which will continue to sell pumps and flowmeters under the Levitronix name.

⁵ PR Newswire, "Thoratec Announces Acquisition of Medical Business of Levitronix," August 3, 2011, 4:02 PM.

Impact Date	Event
	The Company held a conference call with analysts later that day. ⁶
	Piper Jaffray wrote that "significant revenue upsidedrove higher earnings," but cautioned that there was "still potential lumpiness in the LVAD [left ventricular assist device] market and Q to Q growth cannot be assured." Piper Jaffray deferred "update[ing] [its] model after we have results from HTWR on Thurs afternoon and a better understanding of the market dynamics between the two players": ⁷
	The three keys to THOR's Q2 report were: 1) significant revenue upside that drove higher earnings; 2) the \$110M acquisition of Levitronix bringing higher GM, expanded global sales, and in-house R&D capabilities; and 3) higher, but restrained guidance for H2-11. We remain at a Neutral rating. Market share analysis will be available later today as key competitor HTWR reports its Q2.
	Revenue & EPS Upside. Overall revenues were \$111.2M (up 17%, 16% Fx adj). Importantly sales of 753 pumps in the US (up 22%) and 193 units OUS (up 8%) demonstrated global strength. Management estimated 40% of US pump sales were for DT, accelerating beyond a 35% estimate that was not expected until year end. EPS were \$0.44, above our leading \$0.36 estimate; the leverage was from higher revenue, higher gross margin, lower taxes, and in-line opex.
	Big Centers Flex Their Muscle. THOR Picks Up Share, But Sustainability Uncertain: In the US THOR competes mostly with HTWR, since HTWR is conducting trials for BTT and DT, gaining implants that otherwise would likely go to THOR. During Q2 we believe that HTWR was slowed from its normal enrollment rate by some IRB issues surrounding a change in product design. THOR's LVAD strength in Q2 (up 22%) was in part due to grabbing some of the patients intended for HTWR trials. THOR's most mature centers (representing 50% of implants) saw a resurgence of growth (+17%) after a slowdown in previous quarters. We believe the strength in these large centers was in part due to this market share gain but we think there was market growth too, as THOR's increased attention to market building efforts may benefit the large centers first. International revenues, representing only 16% of the total, were up 13% operationally y/y.
	Levitronix Acquisition: The details of the acquisition of privately held Levitronix can be found in the filings, but we see this as a positive for THOR on a number of levels: customer relationship building, sales force productivity, margin improvement, and enhanced R&D capability.

⁶ CQ FD Disclosure, "Event Brief of Q2 2011 Thoratec Corp Earnings Presentation – Final," August 3, 2011.

⁷ Piper Jaffray, "Strong Q2 Results But Sustainability Uncertain," August 4, 2011.

Impact Date	Event
	Thoughts on the model: Considering the significant beat in Q2 and the announced acquisition of Levitronix (\$4M in acquired sales), we expect both our revenue and EPS estimates to move higher. We will update our model after we have results from HTWR on Thurs afternoon and a better understanding of the market dynamics between the two players.
	Investment Conclusion: While simple logic might indicate even higher revenues for THOR in 2011 than guidance indicates, we believe there is still potential lumpiness in the LVAD market and continued Q to Q growth cannot be assured.
	PRICE TARGET AND JUSTIFICATION: Our price target of \$27 is based on the stock trading at 18x our CY12 pro forma EPS estimate of \$1.50.
	RISKS TO ACHIEVEMENT OF TARGET PRICE: Slower than expected ramp in HeartMate II sales for DT and competitive threats.
	Oppenheimer said the Company's revenues "easily beat" its estimates. The analyst noted that much of the Company's upside was due to "HTWR's thrombosis concerns coming out of April's ISHLT conference" and "cautioned against drawing a straight line from 2Q": ⁸
	2Q sales of \$111M (+17% y/y) easily beat our (\$103M) and consensus (\$104M) estimates. Sales were led by accelerated destination therapy growth, better than expected bridge-to-transplant performance and reacceleration internationally. HTWR's thrombosis concerns coming out of April's ISHLT conference likely contributed to some 2Q upside; mgmt acknowledged this. We therefore caution against drawing a straight line from 2Q. Still, THOR's US DT business has now taken nice steps two straight quarters and grew 50% y/y in 2Q. THOR continues to make strides in DT market development. We see the LVAD market reaching >\$1B in '15, led by DT, where THOR has US market exclusivity over the next 3 years.
	US impresses. HeartMate II Unit growth was an impressive 21% with y/y growth led by mid-sized transplant/emerging open-heart centers. Sequentially, larger center growth accelerated on market development efforts and likely share pick-up; some centers likely paused CAP enrollment for HTWR's BTT trial as they awaited the thrombosis update in June and sintered valves.

⁸ Oppenheimer, "Strong 2Q on Market Growth, Some Share Pickup," August 4, 2011.

Impact Date	Event
-	OUS comes back. International sales increased 20% y/y (13% constant currency) vs. a 6% decline in 1Q. As mgmt had indicated, 1Q was impacted by a strong 4Q. In guidance, THOR assumes more competition in France from HTWR. Japan is on track for launch in mid-2012.
	Pipeline/center development on track. In 2H, THOR expects to have a pre-IDE meeting with FDA on Percutaneous Heart Pump and a second pre-IDE meeting on next-generation HeartMate III. THOR has added 18 new customers in '11 (to 272 worldwide). 9 new centers have been DT-certified bringing THOR almost to its year-end goal at 99.
	Market development efforts abound. THOR is putting its strong cash position to work to accelerate the market. In 2H, THOR will add in salesforce and market development, hold a large cardiologist event and build on its "Shared Care" program which offloads some follow-up care on implanting centers and provides a revenue stream to referring docs.
	Raising estimates. On the better 2Q, DT trends and Levitronix (private) deal (see next page), we have raised '11E sales to \$427M from \$415M and EPS to \$1.46E from \$1.40. '12E goes up to \$463M from \$454M and EPS to \$1.63E from \$1.60.
	JP Morgan raised its price target for the Company to \$38 from \$32 after its "strong" results: ⁹
	Thoratec reported strong 2Q results Wednesday after the close, with total revenues of \$111.2M (+17%) coming in \$6.2M above our estimate and \$6.8M better than Street consensus spurred by jump in US destination therapy implants. On the bottom line, adjusted EPS of \$0.44 (+28%) were \$0.09 better than both our forecast and consensus, as a strong gross margin and well contained operating expenses drove a 2Q operating margin that was 450bps above our thinking.
	Overall, Thoratec sold 946 pumps in the second quarter, up 10% sequentially and 19% vs. 2Q10. VAD revenues of \$110.5M grew 17% YOY, as strong HeartMate II growth boosted continued cannibalization of the legacy PVAD/IVAD product lines. Revenue per implant fell 2% vs. 2Q10 to just under \$117k. HeartMate revenue grew 18% to \$97.6M, while PVAD/IVAD sales rose by a surprising 4%. Although Thoratec isn't ready to call a bottom in its legacy product line yet, we estimate that this is the first time PVAD/IVAD revenues have contributed to the company's quarterly growth since 4Q07. Finally, Centrimag revenues of \$5.3M (+15%) were in-line with our estimate.

⁹ JP Morgan, "Strong 2Q as DT Continues to Build Steam," August 4, 2011.

Impact Date	Event
	In conjunction with its 2Q results, Thoratec announced an agreement to acquire privately-held Levitronix. Thoratec has distributed the Centrimag for Levitronix since 2006, an agreement which was set to expire at year end. The deal calls for an up-front payment of \$110M, with potential milestone payments of up to \$40M through 2015, and should solidify the company's position in the acute segment of the circulatory support market. Management expects the transaction to be neutral to adjusted earnings over the balance of 2011 and accretive in 2012.
	DT ramp continues to build. Destination therapy implants accounted for 40% of US HeartMate II units in 2Q, or approximately 270 pumps by our math. This was up from 35% in 1Q, implying sequential growth of roughly 27% as Thoratec's efforts to drive increased referral activity appear to be paying dividends. Meanwhile, five new centers qualified for DT certification in 2Q, bringing the total market to 99 sites. With applications from an additional 12 centers currently under consideration, management now expects to exit the year with 105 approved sites vs. its prior guidance of >100.
	Madison Williams maintained its Buy rating and price target for the Company, and increased its 2011 estimates following "strong 2Q11 results" and increased guidance from management: ¹⁰
	We reiterate our Buy rating and \$50 price target after reporting strong 2Q11 results. Revenues of \$111.2mn and non-GAAP EPS of \$0.44 exceeded our and consensus's estimates of \$103.8mn and \$104.3mn, and \$0.36 and \$0.35, respectively. THOR implanted roughly 706 HeartMate IIs (HM II) in the US vs. our and consensus's estimates of 675, and 138 in x-US vs. our and consensus's estimates of 125. We increase our 2011 revenue and EPS estimates to \$434mn and \$1.55 from \$427mn and \$1.48, respectively, on the heels of management's updated guidance of \$422mn—\$430mn and \$1.40-\$1.50, respectively, vs. prior guidance of \$410mn—\$425mn and \$1.35-\$1.45. Our \$50 price target is now based on 32x our 2011E EPS, down from 34x.
	We reiterate our Buy rating and \$50 price target after releasing strong 2Q11 results. While our revenue estimate heading into the report was \$103.8mn, our checks indicated that it could print a number exceeding \$105mn. THOR actually reported \$111.2mn. In terms of earnings, it reported non-GAAP EPS of \$0.44 vs. our estimate of \$0.36 and the consensus estimate of \$0.35.

¹⁰ Madison Williams, "2Q11: As Expected THOR Signals Accelerating LVAD Adoption; More Upside Ahead," August 4, 2011.

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	Revenue strength came from US LVAD market growth and gained share from competition. THOR implanted roughly 706 HM II in the US vs. our & consensus estimate of 675, and 138 x-US vs. an estimate of 125. In our preview note (published on July 27) we noted that 700-750 was entirely possible, based on our analysis of the INTERMACS data. US referral activities were strong, with LVAD trial centers showing strength, and management confirmed that it gained market share.
	We increase our 2011 estimates on the heels of management's raised guidance. We believe that the increased guidance stems from management's belief that the competing HVAD device will not get US BTT approval until 1Q12 vs. prior 4Q11, and that the acquisition of Levitronix further increases its chances of printing a strong 2H11. We take our 2011 revenue and EPS estimates to \$434mn and \$1.55 from \$427mn and \$1.48.
	With higher expected earnings, we view THOR shares as more attractive, and expect our \$50 target price could be reached by year end. Its shares are currently trading at 22x 2011E EPS. Our \$50 price target is based on 32x 2011E EPS (down from 34x).
	Barrington Research reiterated its price target and Outperform rating for the Company following "strong Q2/11 performance": 11
	THOR reported strong Q2/11 results with revenue up 17% to \$111.2 million versus \$95.1 million in Q2/10. THOR grew U.S. revenue roughly 16% to \$93.0 million versus \$79.9 million in Q2/10 while international revenue increased 20% to \$18.2 million versus \$15.2 million in Q2/10. HeartMate II increased 18% to \$97.6 million from \$82.5 million. The CentriMag Blood pump increased 15% to \$5.3 million from \$4.6 million in Q2/10. The PVAD and IVAD product lines increased 4% from \$7.6 million. Pump sales increased 21% to \$77.8 million versus \$64.4 million in Q2/10. Non-pump sales increased 9% to \$32.7 million versus \$30.0 million in Q2/10.
	THOR's strong Q2/11 performance was driven by a 19% increase in pump sales to nearly 1,000 pumps during the quarter. Growth was also attributed to increased referral activity as well as some market share gains from HTWR's clinical trial centers. As of Q2/11, there were a total of 272 HeartMate II centers worldwide with 135 in the U.S. and 137 internationally. THOR had 130 centers in the U.S. and 124 internationally as of Q4/10. There are now more than 99 centers in the U.S. that have received CMS certification versus nine centers in Q2/10.

¹¹ Barrington Research, "Strong Q2 Results; Reiterating OUTPERFORM Rating and \$36 Target," August 5, 2011.

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	Management updated its guidance and now expects revenues to be between \$422-430 million for fiscal 2011. The increase reflects THOR's expectation that the company revenue will increase with the acquisition of Levitronix Medical. THOR believes that gross margin will be between 68.5-69.5% (GAAP) and 69-70% on a non-GAAP basis. Gross margins are expected to moderate slightly in the 2H/11. GAAP operating expenses are expected to be 17-19% higher than 2010 with non-GAAP expected to grow 15-17%. GAAP EPS is now expected to be between \$1.05-1.15 and non-GAAP EPS is expected to be \$1.40-1.50.
	We are reiterating our OUTPERFORM rating and \$36 target for THOR based on the company's technology and clinical leadership in the large and growing HF market. Our \$36 price target is based on a combination of a DCF analysis and an EV/Revenue multiple of 13x our 2011 adjusted EBITDA estimate of \$147 million.
	Credit Suisse noted that "most of the growth was driven by growth in the overall market, as opposed to share gain," and said the Company was "well positioned to meet or beat its raised guidance" after a strong quarter and the thrombus concerns affecting Thoratec's competitor, HeartWare: ¹²
	2Q beat driven by Strong HM II sales. Q2 revenues of \$111MM handily beat consensus of \$104MM. The beat was driven by strong HMII performance (21% YoY in the US and 20% YoY OUS). Notably THOR indicated its belief that most of the growth was driven by growth in the overall market, as opposed to share gain, which would be a positive since it could indicate that THOR's market development efforts over the past year could be starting to generate increased referrals for LVADs. THOR raised its revenue guidance to \$422MM-\$430MM from the prior \$410MM-\$425MM, including \$4MM of incremental revenue from the acquisition of Levitronix's medical business. The adjusted EPS guidance was raised to \$1.40-1.50 from \$1.35-1.45. Given the strength of this quarter's results and our belief that HVAD implants might be suppressed a little until thrombus concerns are resolved we believe that THOR is well positioned to meet or beat its raised guidance. We model \$431MM in 2011 revs and \$1.51 in adjusted EPS.
	THOR might have gained share in US. THOR indicated that its implants in large established centers (Group One) grew 17% sequentially in Q2 vs. 1% in Q1. This suggests to us that HMII might have gained some share at these centers vs. HVAD as HVAD implants are centered at Group One sites. Slower HVAD sales could be attributable to delays associated with IRB approvals for the new sintered device or to thrombus concerns (which THOR suspects were more operant in the US). Internationally THOR downplayed share gains, saying their ex-NA HM II unit growth (12% sequentially) was in-line with the market (they showed 15% sequential growth with PVAD/IVAD included). We model sequentially flat HVAD units internationally in Q2, higher

¹² Credit Suisse, "Solid Q2 indicates continuing momentum," August 3, 2011.

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	than our survey which indicated a 15% sequential decline. If THOR did not take share in ex-NA markets and HVAD grew apace with the market, our revenue estimate for HTWR (\$19MM vs. consensus of \$20.4MM) will prove light. Importantly, THOR confirmed our view that if HTWR is unable to lower its thrombus rate from 9% it would be highly problematic, but that if it could lower it to ~5% (as seen with preliminary data using elevated Aspirin levels), that the pump would be competitive with HMII.
	Valuation: Our PT of \$43 is DCF derived with a discount factor of 9.2%.
	Wedbush raised its price target for the Company's to \$33 from \$27 and upgraded its rating to Neutral from Underperform after a "better than expected quarter," but the analyst "remain[ed] concerned that growth may stagnate somewhat in 2012 when the company faces competition in the US from HTWR [HeartWare]": ¹³
	Better than expected quarter suggests that 2011 headwinds appear to be lifting. On Wednesday afternoon, THOR reported Q2:2011 revenues of \$111.2 million and EPS of \$0.44, well above our estimates of \$103.7 million and \$0.35, and consensus of \$104.4 million and \$0.35. We attribute THOR's surprisingly strong earnings to several factors, the most important of which is a nearly 20% quarter-over-quarter growth in US DT sales. Between this newly found traction in sales, the positive implication it has for the rest of 2011, as well as our suspicion that competitor HeartWare (HTWR-OUTPERFORM) will not launch in the US until early 2012, we now believe that the grey clouds have lifted for the near-term and that it is more likely than not that THOR beat its newly updated revenue guidance of \$422-\$430 million (raised from \$410-\$425 million).
	2012 Headwinds still a major concern. Despite our more positive outlook for THOR in 2011, we do remain concerned that growth may stagnate somewhat in 2012 when the company faces competition in the US from HTWR. Although HTWR's device has generated headlines lately due to a highly publicized clotting incident, we believe that HTWR's device has the more compelling clinical data set overall, and that within 18 months of the HVAD's launch in the US it will capture more than half of the market in BTT almost entirely at THOR's expense.
	Raising fair value to \$33 from \$27 and upgrading to NEUTRAL from UNDERPERFORM. Our fair value of \$33 is based on a sum-of-parts analysis, applying a 20% annual discount to our 2013 HeartMate II sales estimates in BTT and our 2014 HeartMate II sales in DT, applying a 1-5 multiple based on stage of clinical development to reflect risk. With THOR's recent growth in the US DT market, as well as our suspicion that

¹³ Wedbush, "Upgrading to NEUTRAL from UNDERPERFORM and Raising FV to \$33 from \$27; Optimistic About H2:2011 but Concerns Over 2012 Remain," August 4, 2011.

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	HTWR will not launch in the US until 2012, we now believe it likely that THOR will not only achieve, but even beat, revenue guidance. On the other hand, we do remain concerned over potential competition from HTWR over the longer term.
	Risks to the attainment of our fair value include the possibility that: THOR's product candidates obtain disappointing clinical trial results and or fail to obtain approval; prescribers are not impressed with the products' clinical profiles; superior clinical results are obtained by a competitor; complications or side effects arise with THOR's products.
	Wunderlich Securities reiterated its Hold rating and price target for the Company, noting that "[d]espite our acknowledgment of the very impressive nature of THOR's results, uncertainties related to the HTWR situation tempers our enthusiasm and limits [our] willingness to place a higher EV/Sales multiple on THOR shares": ¹⁴
	Thoratec (THOR) reported impressive Q2 results 08.03.11 after the close. Revenues of \$111.2mm increased 17%, and were well above our expectations and consensus of \$103.1mm and \$104.4mm, respectively. Adjusted EPS of \$0.44 also beat expectations handily. Thoratec's LVAD unit growth increased impressively, as market growth appears to have rebounded from a soft Q1 performance, and THOR appears to have regained market share during the quarter. Heartware (HTWR-\$63.91, Hold) will report after the close Thursday, allowing a better sense of market dynamics, but we believe it's clear that the upside reflects both market share gains and strong market growth. We maintain our Hold rating and \$35 target.
	Key Points Q2 revenues beat expectations. THOR revenues of \$111.2 million beat our estimate and consensus handily, reflecting both market share gains and what appears to be upbeat market growth. Adjusted EPS of \$0.44 also beat our estimate and consensus significantly, reflecting the revenue upside and improved gross margins. The number of LVAD implants in the quarter totaled 946, well above our expectations. We believe THOR benefited from HTWR's woes in the short term, and from a strong rebound in LVAD market growth.
	THOR regains market share. While Heartware doesn't report until tomorrow after the close, we believe it's clear that THOR regained market share in Q2. We believe some HTWR implanting surgeons have delayed implants while waiting for sintered pumps, while concerns over thrombus may have also given THOR a competitive boost in the quarter. So while THOR's revenue performance is very impressive, we believe current market dynamics may have provided a boost to THOR's short-term fortunes.

¹⁴ Wunderlich Securities, "Very Impressive Q2 Performance on Share Gains and Market Rebound," August 4, 2011.

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	Market growth rebounds strongly. While HTWR is still to report, the overall LVAD market appears to have rebounded strongly in Q2, following a disappointing first quarter. Destination Therapy implant growth appears to have been the key driver of growth in the quarter, and accounted for 40% of implants in the quarter. Overall LVAD market growth remains volatile, and we continue to believe that fully implantable devices are needed for a true breakout in the market, but THOR's results would suggest an impressive overall market performance in Q2.
	HTWR uncertainty still an overhang. Ongoing uncertainties over HTWR's thrombus issues are a competitive boost for THOR in the short term, but remain an overhang looking forward. Market share implications related to the outcome of the thrombus issue are meaningful and thus proper risk assessment for both stocks is difficult. Despite our acknowledgment of the very impressive nature of THOR's results, uncertainties related to the HTWR situation tempers our enthusiasm and limits are [sic] willingness to place a higher EV/Sales multiple on THOR shares.
	Valuation. We reiterate our Hold rating and \$35 price target. Our target reflects an EV/Sales multiple of 4x on our 2012 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of looming competition from HTWR, though we will reassess our valuation after HTWR reports Q2 results.
	Morgan Keegan said the Company's results exceeded its expectations, but noted that "even with the beat and revised guidance, the shares are fairly valued at current price levels": 15
	Thoratec exceeded our and consensus revenue and EPS estimates with revenues coming in at \$111.2 million and non-GAAP EPS at \$0.44, but even with the beat and revised guidance, the shares are fairly valued at current price levels.
	Heartmate II unit growth of 21 percent in the U.S. and 20 percent internationally demonstrating the competitiveness of the product, something which had been a concern of investors.
	Total U.S. sales were strong, but after Fx impact International sales grew only 8%.
	Levitronix Medical acquisition appears to be a good strategic move, permitting more control over CentriMag sales and is neutral to earnings in 2011 and accretive in 2012.

¹⁵ Morgan Keegan, "THOR: Solid Quarter, but Valuation Fully Accounted for in Current Stock Price," August 4, 2011.

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	Thoractec raised guidance for the year, but looking at the second half of 2011, high end of guidance means only an additional \$4 million of organic sales, not enough to move valuation higher.
	WJB Capital Group reiterated its Hold rating for the Company and increased its price target to \$30 from \$29 after Thoratec's first half of the year "outperformed expectations," but added that its "neutral stance is driven by our belief in future headwinds for THOR, and the 2Q results, while surprisingly strong, don't change that:" 16
	Last night, THOR delivered much better than expected results, as underlying pump volumes were impressive. THOR also raised guidance based primarily on a strong 1H and acquiring Levitronix but tempered 3Q expectations (on seasonality) and believes it will benefit from a HTWR launch in 2012 (as opposed to Q4 this year). We believe credit is deserved for execution and think the VAD market is healthy, as demonstrated by THOR's results. However, our neutral stance is driven by our belief in future headwinds for THOR, and the 2Q results, while surprisingly strong, don't change that.
	Strong Q2 Results. Last night, THOR reported adjusted EPS of \$0.44, significantly higher than the consensus estimate of \$0.35, as higher sales, higher margin, a lower than expected share count (worth about two cents), and a lower expected tax rate (worth about a penny) contributed to the beat. THOR increased its guidance to sales of \$422 million-\$430 million (from \$410 million-\$425 million) and adjusted EPS of \$1.40-\$1.50 (from \$1.35-\$1.45), as its success in the first half of the year outperformed expectations and the Levitronix acquisition should boost 2H 2011. On the bottom line, a share buyback is offset by margin pressure and higher spending.
	The Underlying VAD Market Appears to Be Healthy. During Q2, HeartMate II pump volumes grew 19% versus last year and were also up sequentially, translating into sales growth of 21% in the U.S. and 20% internationally. THOR's pump volume growth was driven by the DT segment, which accounts for around 40% of pump sales. Internationally, excluding Canada, pump volumes grew 12%, an important metric to note as investors look to its key competitor's report tomorrow night. In terms of market development, THOR continues to add centers in the U.S. (five year-to-date) and expects BTT approval in Japan in mid-2012 with reimbursement to follow a few months later.
	THOR Acquires Levitronix: The Deal Is Earnings Neutral and Adds \$4 Million This Year. THOR also announced that it acquired Levitronix for an initial cash payment of \$110 million, plus a potential \$40 million

¹⁶ WJB Capital Group, "THOR: A Powerful Q2 Deserves Credit, But, As We Look Ahead, Does It Matter?" August 4, 2011.

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	in earn-out payments. As a reminder, THOR has been distributing Levitronix's Centrimag product since 2006 and has been collaborating with Levitronix on the development of a fully magnetically levitated motor technology to be used for HeartMate III. THOR's distribution deal with Levitronix was set to expire at the end of this year, and, as the Centrimag is a strategic lead-in sale for LVADs, we believe THOR was wise to acquire the product. In 2010, in addition to the near \$18 million THOR sold worth of Centrimag, Levitronix sold \$8 million of other products. Based on the nearly \$36 million in 2010 sales, we estimate THOR paid around 3x sales (or 4x with earn-outs) for Levitronix.
	Valuation: Raising Target to \$30 on Higher 2012 EPS. We are reiterating our Hold rating on THOR but raising our target price to \$30.00, based on a target multiple of 19x–21x applied to our new higher 2012 EPS estimate of \$1.52. We are raising our 2011 and 2012 sales and EPS estimates on higher guidance and the Levitronix acquisition, which should contribute to sales and profitability in 2012.
	Leerink Swann said the Company posted "strong ahead-of-consensus results," but cautioned that "THOR's clearly conservative guidance reflects a number of challenges/uncertainties ahead," and that "ex. ~\$4M expected from just-acquired Levitronix Medical, THOR simply raised the low-end of the range": ¹⁷
	Bottom Line: Last night, THOR reported strong 2Q11 sales of \$111.2M (+17% y/y)~\$9M ahead of us and ~\$6M ahead of consensuswhich could push the shares higher today with now a 2nd consecutive quarter signaling strong DT referral momentum. THOR delivered strong 11% sequential HeartMate II (HM II) unit growth based on our estimatesof which ~40% are DT. And the international VAD market seemed to recover a bit this quarter after a soft 1Q, with HM II achieving ~12% sequential growth. Overall, THOR's strong ahead-of-consensus results seem to highlight: 1) that the long-term thesis for accelerating DT momentum remains intactin line with recent physician checksand 2) an increasingly strong competitive positionat least in the near termwith potential market share gains in the highest-volume centers and OUS. But for THOR, penetrating the ~\$2.5B DT market is the key long-term growth driver. And, as we move through 2011, investors will likely gain even more clarity on the size and ramp of the DT market and potential VAD market share shifts post-competitive launch in the much-smaller Bridge-to-Transplant market.
	Challenges Remain, But Conservative Guidance Seems to Minimize Potential Downside. THOR raised 2011 sales guidance to \$422M - \$430M (+10% - 12%) from \$410M - \$425M, in part to reflect better 1H11 performance. But ex. ~\$4M expected from just-acquired Levitronix Medical, THOR simply raised the lowend of the range. Still, we're inclined to think THOR's clearly conservative guidance reflects a number of

¹⁷ Leerink Swann, "2Q11: Long-Term Thesis of Accelerating DT Market Growth Intact," August 4, 2011.

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•	challenges/uncertainties ahead: 1) possibly greater "lumpiness" in quarterly HM II volumes given a more elective-type nature of DT procedures; 2) extent and timing of any ongoing benefit from possible competitor product perceived safety issues; and 3) impact of a competitor's French reimbursement approvalthe 2nd largest EU market.
	2011 & 2012: Outlook Moves Higher Helped by Acquisition. Our 2011 and 2012 sales and EPS estimates are now \$427M (+11%) and \$1.44, and \$467M (+9%) and \$1.71, from \$411M/\$1.37 and \$443M/\$1.65 previously. The acquisition of Levitronix Medicala THOR partner in acute care mechanical circulatory support with CentriMagpushes both sales and gross margins higher. And slightly better DT momentum in 2011 and 2012 helps to offset a worsening outlook for PVAD/IVAD and an early 2012 competitive BTT launch.
	Rodman & Renshaw reiterated its price target and Market Outperform rating for the Company following a "strong" quarter, adding that "[t]he adverse event profiles for HeartMate II and competitive devices are now being objectively reviewed by the clinical community and our checks suggest that the landscape is shifting": ¹⁸
	The Numbers Revenues and GAAP EPS came in at \$111.2 million and \$0.34, respectively, vs. our estimate of \$102.8 million and \$0.28. Street numbers stood at \$104.4 million and \$0.34, although Street EPS is non-GAAP. Thoratec announced the acquisition of Levitronix LLC for \$110 million cash upfront and \$40 million in earnouts. Gross margins of 71.2% were up 60 bps sequentially. Fiscal 2011 revenue guidance was upped to \$422 - \$430 million, from the earlier guidance of \$410 - \$425 million, with GAAP EPS between 1.05 - \$1.15, up from the earlier range of \$1.02 - \$1.12.
	Our Analysis It is a waiting game now. The adverse event profiles for HeartMate II and competitive devices are now being objectively reviewed by the clinical community and our checks suggest that the landscape is shifting. HeartMate II has essentially gone from 20% of all pumps (excluding CentriMag) being put in to about 40% in a matter of 5 quarters. We find that encouraging. To the extent that there are concerns on competitive pumps, the BTT market should also start picking up for THOR. All of this bodes well especially given delayed regulatory approvals for competitive pumps, and potential slowdowns in enrollment for DT trials of competitors. US growth in HeartMate II came in at 21% y/y whereas OUS came in at 20%. Most interestingly, Thoratec stated on the call that it believed it had taken market share from one of its closest

¹⁸ Rodman & Renshaw, "Strong quarter...Outlook for HeartMate II significantly brightening up...Landscape is shifting...," August 4, 2011.

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	competitors. It is unclear if this is the start of a trend. However, what we find most amazing is that there is considerable "grumbling" about the safety profile of a competitive pump, however physicians seems almost unnerved to go on the record to express their unbiased opinion or for that matter allowing to be quoted. The next leg up in this story remains the PHP program and Japan entry for HeartMate II. We await further details on these.
	Valuation We maintain our Market OutPerform rating and a 12-month PT of \$42 on THOR, which represents a 6x forward sales estimate. Key risks include execution risk, market risk, and acquisition risk.
	Canaccord Genuity highlighted the Company's "robust Q2 results," but also cautioned that its valuation was "a bit extended," and that "2011 guidance (increased) actually implies a tempered base business outlook in H2": 19
	If THOR's valuation was not a bit extended (our view), we would be buying shares owing to 1) robust Q2 results (as we previewed in our 7/31 LVAD survey note) that point to strong LVAD market fundamentals, and 2) solid margin leverage. Near term, we think THOR will trade primarily on regulatory and clinical updates from HeartWare (HTWR: NASDAQ: \$63.91 BUY). For long-term investors, we recommend targeting a slightly lower entry point to accumulate THOR, as we want investors to increase exposure to the LVAD group as a whole. We set a one-year price target at \$38, up from a \$35 year-end 2011 target.
	Highlights Sales of \$111M beat consensus' \$104M and our \$107M.
	EPS (pro-forma) were \$0.44 vs. \$0.34 consensus, our \$0.37.
	Gross/operating margins expanded to 71.2% and 35.5% – up 80bps and 430bps, respectively on strong top-line results.
	US VAD units grew 22% Y/Y and 11% Q/Q via two drivers (our view): 1) strong LVAD fundamentals (more centers, stronger referral channel), and 2) slowdown in HTWR's HVAD enrollment due to the IRB process delaying activity in Q2.
	OUS VAD units grew 8% Y/Y and 6% Q/Q; however, VAD units were down 1% Y/Y in H1/11.

¹⁹ Canaccord Genuity, "Q2 Upside as Expected; \$38 PT," August 4, 2011.

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	2011 guidance (increased) actually implies a tempered base business outlook in H2, as the Levitronix acquisition (adds \$4M) and Q2 upside more than offset the \$5M increase.
	UBS wrote that the Company delivered a "solid overall quarter driven by very encouraging development in the US market." Although the analyst expected investors to "question conservative guidance," it did "not view conservatism as unreasonable given qrtr to qrtr mkt variability": ²⁰
	US DT market development is progressing well THOR reported a solid overall quarter driven by very encouraging development in the US market. While we won't know precise market growth rates until HTWR reports tomorrow, US DT may have grown at ~30% seq'y relative to 39% in 1Q11, 4% in 4Q10 & 38% in 3Q10. DT mkt development is the principal driver for THOR (as well as HTWR) & results handily exceeded our expectation: ~275 pumps vs. 187. Investors may question conservative guidance; we do not view conservatism as unreasonable given qrtr to qrtr mkt variability EPS beat on revs & mgns (Table 1); guidance increased 2Q11 revs / EPS were \$111M (+17%) / \$0.44 (+28%) vs our \$106M / \$0.35 & Street \$104M / \$0.34. Gross mgn ahead of our est (71.2% vs 68.4%); THOR expects 2H11 moderation on absorption. Op ex lower by \$2M. FY11 rev guidance to \$422-\$430M from \$410-\$425M but reflects \$4M from Levitronix acquisition. High end of guidance implies 14% organic growth in 2H11 as mgmt considered HVAD launch in France &
	potential increase in HVAD DT recruitment in 2H11. EPS guidance to \$1.40-1.50 from \$1.35-1.45. For FY, high end of guidance ranges imply organic rev / EPS growth of 11% / 22%.
	Read thru for HTWR THOR thinks it may have gained some share (primarily US) but believes bulk of its growth came from the mkt. Ex-US HM2 grew by 20%, below our 28%; ex-US accts for ~70% of HVAD vol so HVAD may not have been significantly encroached ex-US. Our HTWR 2Q11 unit estimate of 198 still seems reasonable to us. While THOR will likely remain aggressive, it does not anticipate dramatic share shifts going forward.
	Valuation – Buy rated Our \$39 price target is DCF derived.

²⁰ UBS, "Market development clicking," August 3, 2011.

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	Wells Fargo raised its price target for the Company to a range of \$42–43 from \$40–41, after "[m]arket growth and possible share gain boosted THOR's Q2:" ²¹
	Summary: THOR reported Q2 2011 sales of \$111MM (+17%), beating consensus \$104MM and our \$107MM estimate. WW pump units of 946 (+19% Y/Y, +10% qtr/qtr) exceeded consensus 885 and our 881 estimate, partly reflecting potential share gains in the U.S. and strong OUS HMII growth of 20% Y/Y. THOR's raised full-year sales guidance of \$422-430MM (+10-12%), versus \$410-425MM, implies essentially flat H2 versus H1 ex-Levitronix revenues, citing likely lighter PVAD sales and a very strong Q2. Non-GAAP EPS guidance increases by \$0.05 to \$1.40-1.50 (+14-22%). Increasing our estimates to \$442MM revenues and \$1.58 EPS in 2011, and \$485M and \$1.80 in 2012. Raising our valuation to \$42-43 (from \$40-41) on 5x our new 2012 forecast.
	Market growth and possible share gain boosted THOR's Q2 - may be mixed for HTWR. U.S. HMII volume rose 21% yr/yr, which THOR attributed to increasing capacity and referrals at mid-size and emerging transplant centers (Tier 2/3). THOR also noted a 17% qtr/qtr volume increase at its trial centers (Tier 1), which may reflect some share gains at the expense of HTWR's HVAD due to thrombus concerns (THOR's Tier 1 centers also tend to be HTWR's BTT CAP and DT trial centers). This does not come as a complete surprise based on our June LVAD survey, which suggested lighter U.S. non-HMII volume, and HTWR comments at our conference in late June that BTT CAP enrollment slowed somewhat. THOR now believes that U.S. approval of HVAD may be delayed to early 2012 versus Q4 2011, which we believe could be upside for THOR's H2 outlook. OUS HMII growth in the low double digits qtr/qtr represented a healthy rebound from Q1, which could be a positive for HTWR's Q2 OUS results as well (HTWR is scheduled to report on August 4).
	DT growth continues - THOR maintains robust market outlook. Robust Q2 US growth was again driven by DT, which was 40% of HMII volume (versus 35% in Q1). THOR continues to expect global VAD market to grow in the high teens to 10K units in 2015, driven primarily by DT. THOR expects DT to become majority of the VAD market in 2-3 years as a result of increased wait time on transplant waitlists and more BTD patients. Five new U.S. DT centers were certified in Q2, bringing the total to 99, and 12 more centers are pending. With DT growth expected to remain the key driver for HMII and overall market, we expect THOR to maintain its first-to-market advantage for some time.

 $^{^{21}\,}Wells\,Fargo,\, "THOR:\,Q2\,\,Outperformed--Outlook\,\,Still\,\,Robust--Raising\,\,Estimates,"\,\,August\,\,4,\,2011.$

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	Levitronix an incremental positive. Financially, the deal offers modest sales and margin increases, which will
	be neutral to non-GAAP earnings in 2011 and accretive in 2012+. Strategically, the acquisition broadens
	THOR's product portfolio and likely opens the door to new VAD customers at open heart centers.
	Valuation Range: \$42.00 to \$43.00 from \$40.00 to \$41.00
	Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of about 5x our 2012E sales. This
	represents a premium to the comparable universe of companies with superior growth prospects. Risks to our
	thesis include slower-than-expected HMII uptake and competitors gaining more share than we model.
	Investment Thesis: We believe that the launch of the HeartMate II (HM II) for destination therapy (DT) will
	drive top tier growth for the next few years and that the LVAD market is large enough to accommodate two players.
	According to Bloomberg, following the disclosures on August 3, 2011, the average of analysts' price targets for the Company increased to \$36.94 from \$35.56, or 3.9%), and one out of 24 analysts with investment ratings for the Company increased its rating. (<i>See</i> Exhibit 5C.) ²²
	Remark: While Thoratec's quarterly financial results exceeded expectations, analysts expressed concerns about whether such growth was sustainable, given that: 1) the Company's quarterly growth was largely attributed to a short-term "boost" due to thrombus issues with HeartWare's competing product; ²³ 2) "potential lumpiness in the LVAD market" made future growth uncertain; ²⁴ 3) Thoratec's "growth may stagnate somewhat in 2012 when the company faces competition in the US from [HeartWare];" ²⁵ and 4) 2011 guidance was considered "restrained," ²⁶ and "reflect[ed] a number of challenges/uncertainties ahead." ²⁷ Thus, given the mixed reactions of analysts, the statistically insignificant Company-specific return on August 4, 2011 is consistent with that expected in an efficient market.

²² Figures exclude Weeden & Co. for which the post-event price target and rating is unavailable from Bloomberg.

²³ Wunderlich Securities, "Very Impressive Q2 Performance on Share Gains and Market Rebound," August 4, 2011.

²⁴ Piper Jaffray, "Strong Q2 Results But Sustainability Uncertain," August 4, 2011.

²⁵ Wedbush, "Upgrading to NEUTRAL from UNDERPERFORM and Raising FV to \$33 from \$27; Optimistic About H2:2011 but Concerns Over 2012 Remain," August 4, 2011.

²⁶ Piper Jaffray, "Strong Q2 Results But Sustainability Uncertain," August 4, 2011.

²⁷ Leerink Swann, "2Q11: Long-Term Thesis of Accelerating DT Market Growth Intact," August 4, 2011.

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11/2/2011	After market close on November 1, 2011, Thoratec released its third-quarter 2011 financial results. ²⁸ For the quarter, the Company reported revenues of \$102.6 million, GAAP income of \$19 million, or \$0.31 per share, and non-GAAP net income of \$25.1 million, or \$0.41 per share. This compared to analysts' consensus of \$103.7 million in revenue and non-GAAP EPS of \$0.34. ²⁹ The Company stated in its press release: ³⁰
	"Thoratec had a solid third quarter, generating double-digit growth in pump unit sales year-over-year in both the U.S. and international markets. We continue to benefit from increased adoption of mechanical circulatory support, as well as the market leadership position of the HeartMate II(R) LVAS (Left Ventricular Assist System)," said Gary F. Burbach, president and chief executive officer of Thoratec.
	"We also experienced a strong quarter with respect to new center development, as we added eight HeartMate II centers globally, including six in the U.S. and two internationally. As of the end of the third quarter, we had 280 HeartMate II centers worldwide, including 141 in the U.S. and 139 internationally, versus a total of 254 at the end of fiscal 2010," he added.
	"Our continued growth is being facilitated by our market development and clinical education programs. In addition, the ongoing flow of data is demonstrating compelling long-term outcomes in HeartMate II patients, including data published recently in leading peer-reviewed journals," he said.
	The Company also issued updated guidance for 2011. It lowered its revenue guidance to a range of \$418–\$423 million, compared to its previous guidance of \$422–\$430 million. GAAP net income per share was expected to be in the range of \$1.08–\$1.12, compared to the previous guided range of \$1.05–\$1.15. Non-GAAP net income per share was expected to be in the range of \$1.48–\$1.52, compared to the previous guided range of \$1.40–\$1.50. ³¹
	The Company held a conference call with analysts later that day. ³²

²⁸ PR Newswire, "Thoratec Reports Third Quarter Fiscal 2011 Results," November 1, 2011, 4:02 PM.

²⁹ Theflyonthewall.com, "Thoratec reports Q3 EPS 41c vs. consensus 34c," November 1, 2011.

³⁰ PR Newswire, "Thoratec Reports Third Quarter Fiscal 2011 Results," November 1, 2011, 4:02 PM.

³¹ *Ibid*.

³² CQ FD Disclosure, "Event Brief of Q3 2011 Thoratec Corp Earnings Presentation – Final," November 1, 2011.

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	Wells Fargo maintained its Outperform rating, but lowered its price target for the Company to a range of \$34–\$35 from \$42–\$43 "to reflect our lower market growth assumptions": ³³
	Summary. THOR reported Q3 2011 sales of \$102.6MM which was \$1MM below consensus and ~\$4.5MM below our estimate. Total revenue growth was +12.8% (+11% Ex-Levitronix) compared to a year ago. Total 3Q pump unit sales of 853 (+11.4% yr/yr) were about 30 pumps below our estimate. The shortfall was mainly in the U.S. due to greater-than-expected seasonality, a rebound in HTWR trial enrollment and slower-than-usual ramp after the summer slowdown. THOR lowered its 2011 sales guidance to \$418-423MM (9-10%) from \$422-430MM (10-12%) and raised FY2011 adjusted EPS guidance to \$1.48-1.52 from \$1.40-1.50 reflecting strong gross margins year to date. We lower our 2011 and 2012 sales estimates by \$14MM and \$28MM, respectively, to \$419.5MM and \$457MM. We are lowering our 2011 and 2012 EPS estimates by \$0.01 and \$0.16, respectively, to \$1.51 and \$1.64. We are lowering our valuation range to \$34-35 to reflect our lower market growth assumptions but we are maintaining our Outperform rating.
	Market Growth Remains Healthy. We estimate the worldwide LVAD market grew about 17% in Q3 2011 after growing about 29% in Q2 2011. The growth rates in the U.S. and outside the U.S. (OUS) were similar. Although this represents a deceleration from Q2 2011, the growth rate remains relatively strong. On sequential basis, the U.S. market was down 7% which was well below the 3% sequential increase in our survey. THOR was down 11% sequentially which was in-line with our survey. On the call, THOR talked about some centers in the U.S. suffering from capacity constraints because the number of patients being managed has increased by about 40% over the past year. According to THOR, this issue can be addressed by hiring additional LVAD coordinators and other infrastructure enhancements. However, we are concerned that some centers may not make the incremental investment in infrastructure because we've heard from some physicians that destination therapy (DT) patients are not profitable. This is something that requires further investigation on our part. THOR Appears To Have Lost Some Share To HTWR. We estimate that THOR lost about 100 bps of share sequentially outside the U.S. to HTWR. We estimate that HTWR has a slightly higher share than THOR at this time (50%), In the U.S. THOR lost about 200 kps of share as a supply higher share than THOR interests.
	this time (50% vs. 48%). In the U.S., THOR lost about 300 bps of share sequentially as HTWR implants increased as concerns about the thrombosis issue appear to have subsided. We continue to expect THOR and HTWR to split the market over time because both pumps have their proponents.

³³ Wells Fargo Securities, "THOR: Disappointing Quarter--Lowering Ests And Valuation Range," November 2, 2011.

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	Guidance Reduced; Lowering Estimates. THOR reduced its 2011 sales guidance to \$418-\$423MM (9% - 10%) from \$422-\$430MM (10% - 12%). The revised guidance implies Q4 2011 sales of \$105-\$110MM which compares to consensus of \$114MM. We lowered our 2011 sales estimate by \$14MM to \$419.5MM.
	Valuation Range: \$34.00 to \$35.00 from \$42.00 to \$43.00 Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of about 4x our 2012E sales. This represents a premium to the comparable universe of companies with superior growth prospects. Risks to our thesis include slower-than-expected HMII uptake and competitors gaining more share than we model.
	Investment Thesis: We believe that the launch of the HeartMate II (HM II) for destination therapy (DT) will drive top tier growth for the next few years and that the LVAD market is large enough to accommodate two players.
	Piper Jaffray reiterated its Neutral rating and price target for the Company, but lowered revenue assumptions, stating "we do not believe the sky is falling," but did not know the duration of the slowdown: ³⁴
	In a historically lumpy LVAD market, THOR missed Q3 revenue expectations by 1.6% and lowered its previously raised guidance by 2% (roughly even with original 2011 guidance). Issues of capacity and reimbursement were raised and discussed, but we do not believe the sky is falling. We think THOR was affected by a more pronounced summer slowdown in cardiac surgeries as confirmed by both industry and hospital data. Not knowing the duration of the slowdown, we have cut our Q4 revenue growth rate from 14% to 7%. For 2012 we have reduced our revenues only slightly, but the uncertainty will persist. Combining the uncertainty, lumpiness, and a looming competitor's FDA panel, we reiterate our Neutral rating and \$33 price target.
	Numbers. THOR's \$102.6M in revenues and \$0.41 in earnings compared to our \$104.3M and \$0.34 estimates. US revenues were up 10%, driven entirely by unit growth, while OUS was up 8% after adjusting for Fx and a recent acquisition. HTWR unit growth in the US was >100% and the blended market grew at 16.5%. THOR lost share as we believe large centers accelerated their efforts to enroll HTWR's DT trial. We expect this artificial dynamic to continue until HTWR's 450- patient Endurance trial is fully enrolled (likely
	March/April '12). We are adjusting our model to reflect increased BTT revenues, offset by gains for HTWR in DT, as our estimate for HTWR's FDA approval date moves out. Our 2012 net impact is for a slight decrease in growth from 7.9% to 7.5%, reflecting the higher uncertainty around 4Q11 estimates.

³⁴ Piper Jaffray, "Slow Summer; Cautious Outlook," November 2, 2011.

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	Guidance a Net Neutral. A decrease in near-term guidance is almost always met with concern regarding future growth. For THOR, the 2011 revenue guidance was originally established in January, reiterated in May, raised in August, and, most recently, lowered in November. If we adjust for the July acquisition, the mid-point of the range decreased from \$417.5M to \$416.5M, representing implied 2011 revenue growth of 9.0% and 8.8%, respectively. However, our Q4 growth assumption decreased from 14.7% growth to 7.3%. The drop-off is notable, but fits within new guidance parameters. Importantly, this belies the notion that Q3's miss was mostly due to extreme summer seasonality.
	The (Lumpy) Market: US market unit growth for 1Q-3Q of 2011 has been 8%, 30%, and 16%, respectively. The uneven sequence makes forecasting more difficult, and more susceptible to error. While we are positive on the overall long-term opportunity for the LVAD market, THOR faces challenges as a relatively small company pioneering a major new technology. The company's market development plan is sound, but with \$100K products and a major educational effort needed to change current views, we expect to see quarter-to-quarter variability in results for at least the next 12-18 months.
	INVESTMENT RECOMMENDATION: We remain at a Neutral rating with a \$33/share price target. Our target remains based on an EV/2012 revenue multiple of 3.9x.
	RISKS TO ACHIEVEMENT OF TARGET PRICE: Slower than expected ramp in HeartMate II sales for DT and competitive threats.
	Oppenheimer blamed the quarterly revenue miss on "typical seasonality" and "capacity constraints at implanting centers along with increased HTWR destination therapy trial enrollment impacted." Oppenheimer "slightly reduce[d] near-term market estimates," but added that "the pieces for long-term expansion are being put in place:" ³⁵
	3Q revenues of \$102.6M (+13% y/y) were slightly below us (\$104.8M) and consensus (\$103.3M). THOR trimmed '11 sales guidance by \$5-6M to \$418-423M. The company is seeing slower near-term implant rates owing to capacity constraints at implant centers. Importantly, management comments echoed what we heard from the cardiology community at the recent HFSA meeting—the interest level among referring docs continues to build. While we slightly reduce near-term market estimates, the pieces for long-term expansion are being put in place. For THOR, the key pipeline remains on track (Heartmate III, PHP, fully implantable) and stronger gross margin trends led to raised EPS guidance.

³⁵ Oppenheimer, "Some Mkt Growing Pains, but Trends Pointing Right," November 2, 2011.

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	US slower in 3Q. HeartMate II (HMII) unit growth was about 11% y/y according to our estimate, versus 20% in 2Q. Besides typical seasonality, capacity constraints at implanting centers along with increased HTWR destination therapy trial enrollment impacted. We were looking for 16-17% growth.
	Despite bottlenecks, patient flow/referrals are solid. The slightly slower US implant rate near-term vs expectations is capacity-driven and not an issue of interest levels among patients/referring cardiologists. Patient growth has been very strong and centers are managing the post-surgical care for current patients before meaningfully accelerating new implants.
	Many proactive steps being taken to broaden capacity: 1) Rollout of THOR's Shared Care program which offloads some follow-up care from implanting to referring centers; 2) Continued DT center expansion (11 in the near-term pipeline, with five potentially onboard by year-end); 3) THOR's support for surgeon/doc fellows program; 4) Centers adding more VAD coordinators.
	OUS ahead. International implants of 188 were above our 161 estimate, with HMII coming in slightly better and PVAD/IVAD very strong. European austerity remains a focus and THOR will see increased competition in France from HTWR; however, Japan launch is on track for mid-2012.
	Adjusting estimates. Our '11E revenues go from \$427M to \$420M, while EPS rises \$0.04 to \$1.50 on better GM. With HTWR's US launch likely pushed to mid-12 as it awaits the FDA panel, our '12E revenue rises \$2-3M to \$465M despite tempered near-term market growth assumption. Our 2012E EPS rises \$0.04 to \$1.67.
	JP Morgan said the Company's quarterly results were "mixed," stating that "[m]ore noteworthy than the quarter itself, however, was the fact that management lowered the midpoint of its full year sales guidance by \$5-6M." The analyst said, "It's this reduced outlook that we expect investor attention to focus on": ³⁶
	Thoratec reported mixed 3Q results Tuesday after the close, with total revenues of \$102.6M (+13%) coming in in-line with our estimate but \$1.0M below Street consensus. On closer inspection, HeartMate II sales actually missed our forecast by \$3.4M, with the shortfall offset by higher than expected PVAD/IVAD and Centrimag revenues. On the bottom line, adjusted EPS of \$0.41 (+29%) were \$0.07 better than both our forecast and consensus, as a strong gross margin and well contained operating expenses drove an operating margin that was 440bps above our thinking. More noteworthy than the quarter itself, however, was the fact

³⁶ JP Morgan, "Mixed 3Q and Cautious Market Commentary Raise Some Eyebrows; Staying on the Sidelines," November 2, 2011.

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ì	that management lowered the midpoint of its full year sales guidance by \$5-6M, citing a number of issues
	ranging from capacity constraints at centers to insufficient reimbursement for DT patients.
	It's this reduced outlook that we expect investor attention to focus on, as it comes on the heels of a guidance increase just three month ago and signals a potential change in tone at a time when the VAD market should be hitting its stride on the back of the continued ramp in DT. After speaking with the company, our sense is that management was more attempting to fit a story to what it was seeing in its business than alert the Street to significant new market pressures, as neither the issue of centers needing to increase resources as they scale up nor the reimbursement environment has changed recently in any meaningful way. That said, while the 3Q shortfall could have been explained by increased seasonality or merely the failure to recognize an unusual benefit in 2Q following Heartware's ISHLT presentation, Thoratec's 4Q guidance (+5-10% ex-Levitronix) implies that implant volumes will continue to track below expectations for at least the near term.
	Overall, Thoratec sold 853 pumps in 3Q, up 11% YOY. VAD revenues of \$102.0M grew 13%, as weaker than expected HeartMate II growth was offset by surprising strength from the legacy PVAD/IVAD product lines and a boost to the company's acute care segment following the acquisition of Levitronix. Revenue per implant rose 1% vs. 3Q10 to more than \$119k. HeartMate revenue grew just 9% to \$87.6M, \$3.4M below our estimate, while PVAD/IVAD sales of \$7.2M (+16%) came in \$1.9 better than our thinking. This is the second consecutive quarter of growth for Thoratec's legacy product line, suggesting that PVAD/IVAD sales may have found at least a near-term bottom after a period of intense cannibalization. Finally, Acute Support revenues of \$7.2M (+95%) were \$1.4M above our estimate, as the company benefited from the close of the Levitronix deal during the quarter.
	Despite the quarterly revenue miss and reduction in revenue guidance, Barrington Research reiterated its price target and Outperform rating for the Company "based on THOR's technology and clinical leadership in the large and growing HF market": ³⁷
	THOR reported Q3/11 revenue of 102.6 million, up 13% versus \$91 million in Q3/10, but below our estimate of \$104 million and the consensus estimate of \$103.6 million. Non-GAAP EPS came in at \$0.41, up 28% from Q3/10, and above our estimate of \$0.32 and the consensus of \$0.34.
	U.S. revenue grew 9.8% to \$83.9 million, versus \$78.5 million in Q3/10, while international revenue increased 28% to \$18.7 million versus \$12.5 million in Q3/10. HeartMate sales grew 8.7% to \$87.6 million, from \$80.6 million. CentriMag/PediMag sales increased 94.6% to \$7.2 million, while the PVAD and IVAD lines grew by

³⁷ Barrington Research, "Reiterating our OUTPERFORM Rating and \$36 Price Target," November 2, 2011.

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	16.1% to \$7.2 million. THOR recently acquired Levitronix, the original developer of the CetriMag and PediMag product lines which has significantly improved THOR's gross margin on these product lines and should result in a greater focus on these market opportunities from THOR's salesforce going forward. Levitronix is also integral in THOR's next generation product line that will encorporate [sic] some of Levitronix's magnetic levitation technology and IP.
	Pump sales increased 15.3% to \$72.2 million, from \$62.6 million in Q3/10 while non-pump sales rose 6.8% to \$29.8 million, versus \$27.9 million in Q3/10 due primarily to a difficult comparison from the 2010 peripherals upgrade cycle. In terms of units, THOR grew the number of pumps 11.4% to 853 pumps versus Q3/10. There were roughly 665 pumps shipped within the U.S., and 188 pumps were delivered internationally. As of Q3/11, there are a total of 280 HeartMate II centers worldwide, up from 254 at the end of FY/10. There are now 141 centers in the U.S. and 139 internationally. There are now 99 centers in the U.S. with DT certification.
	Management reduced its FY/11 revenue guidance to a range of \$418-423 million, from \$422-430 million. GAAP EPS guidance was narrowed to a range of \$1.08-1.12, from \$1.05-1.15, while non-GAAP EPS guidance was raised to \$1.48-1.52, from \$1.40-1.50. Additionally, THOR believes gross margin will increase to approximately 69% on a GAAP-basis, and 70.5% on a non-GAAP basis. GAAP operating expenses are expected to be 16% higher than 2010, with non-GAAP expenses expected to grow by 13%.
	We are reiterating our OUTPERFORM rating based on THOR's technology and clinical leadership in the large and growing HF market. Our \$36 target is based on 13x our 2011 adjusted EBITDA estimate of \$147 million.
	Credit Suisse lowered its price target for the Company to \$41 from \$43, stating "2012 looks good but 2013 growth in question": 38
	Summary: THOR reported Q3 revenues of \$102.6M which missed consensus by approximately \$1MM. THOR cited modestly greater seasonality and typical market lumpiness as reasons for the shortfall. We estimate market growth was 16% YoY in the US and OUS markets. HTWR appears to have captured most of the OUS growth. THOR lowered 2011 revenue guidance to \$418-423M (prior \$422-430M) but raised adjusted EPS to \$1.48-1.52 (prior \$1.40-1.50). We are adjusting our THOR model and now expect EPS to be \$1.54 in 2011 with revs of \$422M. In 2012 we expect revs of \$478M and EPS of \$1.75. We are lowering our price target to \$41 from \$43.

³⁸ Credit Suisse, "Bumpy Q3 could cause near term weakness," November 1, 2011.

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	2012 looks good but 2013 growth in question: Due to the likely delay in HTWRs commercial launch in the US we expect THOR to post solid growth in 2012 (13% topline, 14% bottomline in our model). We model 15% unit CAGR WW in 2012-2015. However 2013 could be a challenge for THOR due to HVAD launch, unless THOR can grow the DT market enough to offset share loss to HTWR in the BTT segment. We expect THOR to offer greater clarity on the timeline of their pipeline particularly the PHP program in 2012.
	Intrinsic valuation sugessts [sic] upside: We model WW LVAD unit growth of 16% in 2012 and moderate growth thereafter (15% CAGR 2012-2015). Our 2015 WW market unit estimate is 8200 units, well short of the 10,000 estimate articulated by THOR. Even our conservative model and 50% share assumption supports an intrinsic valuation for THOR of approx \$41 and hence we maintain our OP rating. We believe this is an investment story and take a long term view while acknowledging short term fluctuations.
	Valuation: Our \$41 PT is DCF based.
	Wedbush lowered its price target for the Company to \$31 from \$33, writing it was "concerned about Q3's low revenues and what it might suggest about THOR's near-term growth prospects" for HeartMate II: ³⁹
	Revenues below expectations on weak HeartMate II utilization in the US and Europe. On Tuesday afternoon, THOR reported Q3:2011 revenues of \$102.6 million and EPS of \$0.41, compared to our estimates of \$104.4 million and \$0.35, and consensus of \$103.7 million and \$0.34. While EPS was higher-than-expected, due to strong gross margins and lower-than-expected SG&A expenses, we are concerned about Q3's low revenues and what it might suggest about THOR's near-term growth prospects. Corroborating this concern, during the earnings call management lowered fiscal year 2011 revenue guidance to \$418-\$423 million from \$422-\$430 million. While European HeartMate II sales and US BTT sales posted only modest declines quarter-over-quarter, US implants in DT appear to have experienced a more rapid drop-off. At the same time, we note that competitor HeartWare (HTWR-OUTPERFORM) experienced its strongest quarter to-date, suggesting that competitive issues may provide some explanation.
	HVAD BTT launch pushed-back but 2012 headwinds still a concern. With the single largest market worldwide currently the US market for BTT, we remain concerned that THOR may face a challenging period once HTWR obtains approval in this market. Fortunately for THOR, delays at FDA as well as requests for supplemental data have pushed back the likely date of HTWR's approval until Q2:2012, providing THOR with

³⁹ Wedbush, "Q3:11 Revenues Disappoint; FY:11 Rev Guidance Lowered; Reiterate NEUTRAL and Dropping FV to \$31 from \$33," November 1, 2011.

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	extra breathing room. That said, we do believe that a HTWR launch in the US is nearly inevitable, and that this fact will cast a looming shadow over THOR's share price as mid 2012 approaches ever nearer.
	Reiterate NEUTRAL lowering fair value to \$31 from \$33. Our new fair value of \$31 is based on a sum-of-parts analysis applying a 20% annual discount to our 2013 HeartMate II sales estimates in BTT and our 2014 HeartMate II sales in DT, applying a 1-5 multiple based on stage of clinical development to reflect risk. This fair value has been lowered from our prior estimate of \$33 due to lowered expectations for the HeartMate II.
	Risks to the attainment of our fair value include the risks that: THOR's product candidates obtain disappointing clinical trial results and or fail to obtain approval; prescribers are not impressed with the products' clinical profiles; superior clinical results are obtained by a competitor; complications or side effects arise with THOR's products.
	Wunderlich Securities reiterated its "Hold" rating and price target for the Company, stating "Given the solid numbers out of Heartware (HTWR-Hold) last week, we think the THOR numbers will tend to go over poorly, especially given a disappointing performance in the US": ⁴⁰
	Thoratec (THOR) reported mixed Q3 results Tuesday after the close. Revenues of \$102.6mm increased 13%, slightly above our estimate of 102.44mm but below consensus of \$103.3mm. Adjusted EPS of \$0.41 also beat expectations, but EPS were boosted by several items, including a one-time R&D credit. US performance was specifically disappointing, and THOR lowered full year revenue guidance slightly, which will further fuel concerns. Still, are tempted to we view [sic] the Q3 results within the context of the normal fluctuations common in the LVAD market, and we would be more inclined to be opportunistic if the market overreacts to the Q3 results. We maintain our Hold rating and \$35 target.
	Key Points Q3 revenues produce mixed results. THOR revenues of \$102.6 million beat our estimate but was below consensus, reflecting weaker economic conditions and 'seasonality' within the business. CEO Gary Burbach also mentioned that this 'lumpiness' within Thoratec's business was much higher than anticipated. Given the solid numbers out of Heartware (HTWR-Hold) last week, we think the THOR numbers will tend to go over poorly, especially given a disappointing performance in the US.

⁴⁰ Wunderlich Securities, "Soft Q3 Revenue Performance and Lower Revenue Guidance Raises Concerns," November 2, 2011.

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	Market growth solid, but THOR domestic unit growth concerning. THOR's performance suggests the overall LVAD market was up strongly again in Q3, though well below the very strong levels witnessed in Q2. HeartMate revenues were up 8.7% year/year to \$87.6mm, but down more than 10% sequentially. Overall pump units increased 11%, but overall pump units in the US fell shy of our estimates. Coupled with HTWR's strong Destination Therapy trial enrollment, we suspect these numbers will raise competitive concerns once again.
	Market expansion/development positive, but utilization for THOR declines. We were encouraged by the addition of 8 new HeartMate II centers. In addition, 11 centers have applied for Destination Therapy (DT) certification. But center utilization of HeartMate II looks to have declined fairly significantly in Q3 versus the strong Q2 levels, some of which can be explained by an apparent loss of share to HTWR. Again, while this may prove to be nothing more than traditional quarterly lumpiness, this will raise competitive concerns once again.
	HTWR delay boosts our short-term outlook. Despite the slight Q3 revenue shortfall and pullback in Q4 guidance, the apparent delay in FDA approval of HTWR boosts our 2012 outlook for THOR modestly. HVAD approval still remains an overhang going forward, however, and uncertainties related to competition from HTWR tempers our enthusiasm and limits are willingness to place a higher EV/Sales multiple on THOR. We are also keeping an eye on an expected new product introduction from Abiomed (ABMD-Buy), which could potentially impact this market.
	Valuation. We reiterate our Hold rating and \$35 price target. Our target reflects an EV/Sales multiple of 4x on our 2012 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of looming competition from HTWR, though we will reassess our valuation after we learn more about the FDA approval for Heartware.
	Morgan Keegan said the Company's revenue was "well below consensus." The analyst added that "Thoratec is ratcheting back expectations for the fourth quarter" with its reduced guidance: ⁴¹
	Thoratec's third quarter sales came in slightly ahead of our revenue estimates but well below consensus. Overall "same store" sales in both the US and Europe fared less well than many expected, and despite challenges in the institutional economics of Destination Therapy implants they still outpaced Bridge To Transplants. The company delivered strong EPS of \$0.41 on favorable foreign exchange, the ratio of

⁴¹ Morgan Keegan, "THOR: Troubled Quarter not Helped by Expectations that Were Too High," November 2, 2011.

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	pump/non-pump sales, and favorable tax moves. Guidance goes both ways, with sales guidance lowered and EPS guidance increased, particularly on stronger gross margin guidance.
	If Consensus had not been so high, this quarter's numbers would not appear as bad as they do. Thoratec's sales of \$102.6 million were down sequentially, but after a blockbuster quarter that is not unheard of. We had taken an even more conservative look at sales growth than most analysts, as we thought it likely that it would be hard to follow the second quarter's performance. The company's lowered guidance will affect our fourth quarter estimates as well as those of our more optimistic peers, though we don't see significant longer term impact from a 1% to 2% decline in growth rates this year.
	Thoratec seems to have maintained market share in Europe, where it is facing real competition. Thoratec grew international sales 5% in the quarter, below the 20% seen in the second quarter but still a reasonable growth rate. Competitor HeartWare posted 37% growth, however this is on a much smaller base and fell slightly short of our expectations. We believe that Europe remains competitive, and existing unit controls within some countries should provide a hedge against new austerity measures in other areas of healthcare.
	Destination Therapy may not be as easy a sell as first thought, though it clearly remains a significant opportunity. Destination Therapy procedures are at two disadvantages relative to Bridge To Transplant in terms of economics for the implanting center. In a BTT procedure, the hospital is highly likely to follow the expensive VAD implant with a highly reimbursed heart transplant which mitigates much concern over the high cost of the device. Not only do Destination Therapy patients by definition lack the progression to heart transplant, but when the patients treated are the sickest of the sick - INTERMACS scores of 1 or 2 - then the ongoing cost of care remains high despite health improvements which come with the VADs. CMS's proposal to reduce reimbursement of VAD explant by 46% may help to narrow the economic gap, though we believe that the cost of care combined with the high VAD procedure cost could dampen some enthusiasm in those extremely sick patients. Thoratec's ROADMAP trial will follow patients with INTERMACS scores of 4, 5 and 6 - all within the current indication - who are far healthier than patients with scores of 1 or 2 and whom could see a large enough improvement in overall health to return them to a more normal life than that of an expensive hospital frequent flyer. We would not be surprised to see an "eyeball test" slowly emerge for the sicker patients, as experienced surgeons learn to differentiate between those patients with more potential to rebound versus those who are less apt to benefit.
	Lowered Fourth Quarter guidance reflecting a conservative perspective is prudent. After optimistically raising estimates after a strong second quarter, Thoratec is ratcheting back expectations for the fourth quarter. We believe that this is prudent, and will have less far to go than some as many estimates shared Thoratec's

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	excitement but outpaced the company in terms of growth expectations. Whether this quarter's performance was due to changing dynamics for VADs overall or just a matter of mis-placed expectations, we expect the company's guidance to return estimates from stretch goals to more attainable figures.
	WJB Capital Group wrote that it "expect[ed] THOR shares to get punished" for its revenue miss, reduced revenue guidance, slowing growth rates, and market shares loss to HTWR: ⁴²
	Last night, THOR reported a slightly light quarter (in terms of sales) and lowered its sales guidance, as it had overestimated market growth. We expect THOR shares to get punished for three reasons: 1) THOR missed and lowered top line expectations, which in this market isn't looked upon lightly; 2) THOR indicated that it expects the market to grow slightly slower than expected; and 3) it appears as if THOR is losing share to HTWR OUS. We think the negative reaction to slowing market growth is a little overdone, as the market is still expected to grow in the low teens. Then again, we thought it was crazy that THOR shares rallied because HTWR's FDA panel was delayed a month or two. Net, we're sticking to our neutral thesis that THOR's growth will come under pressure as we expect HTWR to get approval, launch in the U.S., and take market share.
	A Top-Line Miss but a Strong Bottom Line. Last night, THOR reported adjusted EPS of \$0.41, significantly better than the consensus estimate of \$0.34. Slightly lower than expected Q3 sales of \$102.6 million (versus the consensus estimate of \$103.6 million) were more than offset by a stronger than expected gross margin.
	Top-Line Guidance Lowered Due to a Slower Than Expected 2H 2011 but Bottom Line Raised. THOR lowered its sales outlook for the year to \$418 million-\$423 million (from \$422 million-\$430 million), indicating that growth/seasonality this quarter was worse than expected and that implant activity has not rebounded to previously anticipated levels, so it appears as if market growth in Q4 would be slower than expected. Positively, it reiterated its long-term bullish outlook on the VAD market and growth. Also, positively, THOR raised its EPS outlook to \$1.48-\$1.52 (from \$1.40-\$1.50) to reflect a stronger than expected first three quarters of the year.
	Color on Market Growth? We Don't Like to Hear "Slower Growth" but the Market Is Still Very Healthy. THOR overestimated market growth in Q2 as it benefited from questions about HTWR's device post a data presentation that raised questions about thrombus issues. Further, THOR indicated that there are some capacity constraints in the market as it takes time to open centers, ramp up patient volumes, and educate them

⁴² WJB Capital Group, "THOR: Lower Guidance Disappoints, but We Believe the Market Is Still Healthy," November 2, 2011.

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	on getting reimbursement for Destination Therapy. Still, we estimate that the market grew in the mid-teens in Q3 and THOR believes that the back half of the year unit volume growth should be in the low teens. In terms of market segmentation, Bridge-to-Transplant volumes remain flat to down, while Destination Therapy is driving market growth.
	THOR Might Be Losing Share in Europe Too. While THOR management indicated that it believes it is holding share in Europe, it appears as if international growth was driven largely by PVADs, not HeartMate II pumps, implying that more of HTWR's HVADs gained share on THOR's HeartMate II.
	Valuation. We are reiterating our Hold rating and \$30 price target, based on a target multiple of 19x–21x applied to our updated 2012 EPS estimate of \$1.56. We are lowering our 2011 and 2012 sales estimates to account for slightly slower market growth but raising our EPS estimates as a function of better profitability.
	Leerink Swann expected the Company's stock to "come under a bit of pressure after the company reported a bit weaker-than-expected 3Q11 sales." The analyst said it was "inclined to think THOR's guidance is conservative and incorporates challenges/uncertainties ahead": ⁴³
	Bottom Line: Today, THOR shares could come under a bit of pressure after the company reported a bit weaker-than-expected 3Q11 sales of \$102.6M (+13% y/y)~\$1M ahead of us but ~\$1M+ below consensus. Though U.S. DT referral momentum continues to drive growth, THOR attributed the sales miss to a more dramatic summer seasonal slowdown in VAD implants. And THOR lowered 2011 sales growth guidance by 1-2 pointsto +9%-+10% from +10%-+12%due to the lack of meaningful reacceleration vs. a particularly strong 1H11. But we see no fundamental change in underlying DT market growth. THOR cited lack of meaningful capacity to manage and implant an increasing number of DT patients as one potential near-term bottleneck to driving market growth, with centers managing 40% more ongoing patients vs. the year-ago period. THOR reiterated a 10,000-pump market estimate by 2015highlighting management's confidence in what we believe is an unchanged long-term outlook. For THOR, penetrating the ~\$2.5B DT market is the key long-term growth driver. And, as we move into 2012, investors will likely gain even more clarity on the size and ramp of the DT market and potential VAD market share shifts post-competitive launch in the much-smaller BTT marketpotentially pushing THOR shares higher.
	2011/2012 Sales Outlook Moves Lower Our now-lower 2011 and 2012 sales estimates\$419M (+10%) and \$454M (+8%)reflect a slightly lower 2H11/1H12 growth outlook as THOR works through center capacity

⁴³ Leerink Swann, "3Q: A More Dramatic Seasonality Impact Pushes '11 Sales Outlook Slightly Lower," November 2, 2011.

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	issues. Still, we're inclined to think THOR's guidance is conservative and incorporates
	challenges/uncertainties ahead: 1) possibly greater "lumpiness" in quarterly HM II volumes; 2) extent and
	timing of possible competitor product perceived safety issues; and 3) impact of a competitor's French
	reimbursement approvalthe 2nd-largest EU market. Our 2011 EPS estimate moves higherto \$1.48
	(+17%) from \$1.44reflecting stronger gross margins. Our 2012 EPS estimate moves lowerto \$1.65
	(+14%) from \$1.71due to lower sales.
	But Long-Term Thesis Intact. Despite a lower near-term sales outlook, we continue to believe the DT
	market growth story remains intact. At a recent medical meeting, we spoke with physiciansprimarily
	higher-volumewho noted increasing DT referrals at their centers. DT is clearly driving this ramp, with one
	physician noting he expects that his DT volume could double or triple each year over the next few years
	ultimately driving THOR to a \$2.5B+ market opportunity.
	Rodman & Renshaw said the Company had a "confusing quarter" and did not know if the capacity constraint issues that affected sales were "a blip on the screen [or] a more prolonged pattern." The analyst maintained its Market OutPerform rating for the Company, but lowered its price target from \$42 to \$40: ⁴⁴
	The Numbers
	Revenues and GAAP EPS came in at \$102.6 million and \$0.31, respectively, vs. our estimate of \$102.7 million
	and \$0.31. Street numbers stood at \$103.6 million and \$0.34, although Street EPS is non-GAAP. Gross
	margins came in at 70.25%, a sequential downtick of 100 bps primarily due to a write-up in inventory
	valuation for Levitronix of about \$1.4 million. Fiscal 2011 revenue guidance was lowered to \$418 - \$423
	million, from the earlier guidance of \$422 - \$430 million, with GAAP EPS between 1.08 - \$1.12.
	Key Takeaways
	Unit growth in HeartMate II in the U.S. was 10% year/year and DT implants constituted roughly 40% of total
	U.S. implants. The company indicated that most of the growth came from DT implants, not BTT. Europe unit
	growth for HeartMate II was 5% year/year, and the company alluded to maintaining a 50% share in Europe,
	with HTWR roughly around 40 – 42% share.
	The PVAD line did very well from a units perspective OUS. Remember, the PVAD and IVAD units were
	being rapidly cannibalized by the HeartMate II. If PVAD did well, then some HeartMate II units did get
	being rapidly calificative by the Headstrate II. If I vib aid wen, then some Headstrate II thits did get

⁴⁴ Rodman & Renshaw, "Confusing quarter...Field checks yielded an incorrect signal for the quarter...," November 3, 2011.

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	cannibalized in the quarter. What caused that change? We don't know. The company also mentioned that growth was slowed down by "peripherals" which include the new controllers, modular leads, etc.
	Something on the call did not add up. Our math suggests that there was at least a 40 unit sequential shortfall in HeartMate II implants in the U.S. However, Heartware (HTWR – Not Rated) sold an incremental 17 pumps in the U.S. in Q3 over Q2.
	Thoratec indicated that it was seeing capacity constraints in DT centers even though patient referrals were increasing, with U.S. centers now handling 40% more patients on a year/year basis. Our field checks had been indicating a movement of trained surgeons from high-volume centers to private practice. Did the lack of trained surgeons and support personnel in the high-volume centers cause a backlog? How will "economics" between the university centers and the private practice centers dictate referrals and implant volumes. This is the only rational explanation we have. We confesswe don't know if the capacity constraint issue is a blip on the screen on a more prolonged pattern.
	Valuation We maintain our Market OutPerform rating, but are lowering our PT to \$40, which represents 5x our forward sales estimate of \$463 millions [sic]. Our earlier PT was \$42. Key risks include execution risk, market risk, and acquisition risk.
	Canaccord Genuity lowered its price target for the Company to \$34 from \$36, stating "Is there a material constraint to LVAD market growth?" would be the "#1 question on investors' minds following THOR's Q3 earnings call": ⁴⁵
	Is there a material constraint to LVAD market growth? This will be the #1 question on investors' minds following THOR's Q3 earnings call, even though a \$1M Q3 miss and \$5M 2011 guidance reduction (albeit still above guidance set entering the year) does not, in our mind, warrant material increase in concern on this topic. The trigger to this expected "consternation" can be attributed to THOR management, who mentioned "capacity constraint" at a few centers as one (of many) reasons for the aforementioned miss/guide-down. Our channel checks – namely multiple LVAD surveys over the past several quarters, coupled with many conversations with clinicians – suggest that capacity has not and will not be a major constraint to overall market growth going forward. We remain bullish about LVAD market potential, and continue to model ~20%
	US and ~18% worldwide market growth through 2015. We would be buyers of HeartWare (HTWR:

⁴⁵ Canaccord Genuity, "Q3 Raises Questions, But We Remain Bullish About Long-Term Market Growth," November 2, 2011.

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	NASDAQ: US\$64.39 BUY) at current levels. For THOR, we lower our price target to \$34, but would be constructive if weakness is overdone (i.e., < \$30/share).
	Investment highlights Q3 sales of \$102.6M (+13% Y/Y) missed our \$103.9M estimate and \$103.6M consensus. EPS (pro-forma) were \$0.41, above our/consensus \$0.34, owing to stronger-than-expected GM, lower OpEx (partially a timing issue) and modestly lower tax rate.
	US VAD revenue was \$83.3M vs. our \$87.8M estimate. OUS VAD revenue was \$18.7M vs. our \$15.5M estimate; however, \$1.6M of the differential derived from the Levitronix acquisition. Also, management said LVAD unit growth OUS was led by PVAD, not HM2. We estimate THOR/HTWR each maintained existing share OUS in Q3.
	THOR reiterated its market growth estimate of upper teens for '11 and maintained its long-term outlook for VADs (approaching 10k by '15).
	Barclays Capital "expect[ed] THOR shares to be down" as investors focus on lowered 2011 guidance, but it remained "positive on the stock": ⁴⁶
	MATT'S MINDSET: While THOR reported a relatively in-line quarter, the focus was on lowered 2011 guidance. The reduction was due to greater-than-expected seasonality in the 3Q and a lower level of underlying growth in the 2H as centers work to "digest" increasing numbers of ongoing patients. The 3Q guidance reduction essentially erased a 2Q guidance raise; however management continues to expect 2011 LVAD market growth in the mid-teens (low teens in the 2H) and noted no fundamental change to its longer term outlook as referrals remain strong.
	While we expect THOR shares to be down today, we remain positive on the stock and would be buyers for five key reasons: 1) the guidance reduction was only \$5.5mn (1.5%) and resets guidance to THOR's initial expectations for the year; 2) while we adjust numbers down slightly, there is minimal change to our longer-term expectations for market growth and THOR market share; 3) the LVAD market experienced a similar temporal slowdown in the 2H10 as centers worked to increase their resources and reengage to drive higher growth; we expect the "lumpiness" in growth to smooth over time; 4) referrals remain strong and we believe that market development efforts and education will continue to drive growth; and 5) we think THOR will

⁴⁶ Barclays Capital, "Guidance in Focus – Remain Constructive," November 2, 2011.

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	retain more US share than the market is anticipating and believe there could be upside to our 2012 numbers. Net-net despite the guidance hiccup, we remain constructive on THOR and disciplined around valuation; we would be buyers on weakness.
	RESULTS SUMMARY: THOR reported 3Q revenue of \$103 MM versus our and the consensus estimate of \$104 MM and EPS of \$0.41 versus our \$0.35 and the Street's \$0.34. 2011 revenue guidance was lowered to a range of \$418-\$423 MM from \$422- \$430 MM while EPS guidance was raised to \$1.48-\$1.52 from \$1.40-\$1.50.
	UBS left its price target for the Company and rating unchanged, but wrote that "in hindsight [guidance] was aggressive & explains good chunk of guidance chg despite inline 3Q11:" ⁴⁷
	Rev guidance trimmed; EPS guidance elevated on margins THOR trimmed FY rev guidance to \$418-423M from \$422-430M on mkt growth & better HVAD trial enrollment in the US. On mkt growth, we previously assumed positive growth was possible on top of very strong 4Q10 but in hindsight this was aggressive & explains good chunk of guidance chg despite inline 3Q11. On HVAD, THOR anticipated some improvement; seq'l step-up in US HVAD units (17) + similar HVAD count in 4Q11 would clip ~\$4M from THOR 2011 sales.
	Scenario analysis on '12/'13 revs Our THOR '12/'13 total revs are lowered by roughly same amt as chg in '11 rev guidance; we now est '12/'13 revs at \$465M/\$460M vs. Street's \$465M/\$509M. We conducted a scenario analysis to help frame range of likely outcomes; our '12 base case is inline w/ Street but hinges on HVAD approval timing; we assume midyr approval & note that early 2Q11 approval w/ strong uptake could subtract ~\$40M from THOR in '12. Street '13 rev est does not appear to adequately bake in the HVAD competitive dynamic. \$10M in HM2 revs equates to ~\$0.07 in EPS.
	Still constructive on LVADs; mkt momentum likely to persist post-4Q11 3Q11 ww mkt growth was 20%, inline w/ our outlook heading into the quarter. That said, we lowered 4Q11 mkt growth est as trajectory observed by mgmt does not support substantial growth. We adjusted global LVAD '11-14 ww unit growth to 14% from 16% but remain constructive on the space.
	Valuation – DCF-based price target of \$39

⁴⁷ UBS, "Where to from here (mkt models included)," November 2, 2011.

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	On '12 ests, at \$31, THOR trades at 19x P/E, 9x EV/EBITDA & 7% FCF yield.
	News articles attributed the decline in the Company's stock price to its quarterly revenue miss and lower sales guidance. ⁴⁸
	According to Bloomberg, following the disclosures on November 1, 2011, the average of analysts' price targets for the Company decreased to \$35.53 from \$36.65, or -3.0%, and one of out of 23 analysts with investment ratings for the Company increased its rating. (<i>See</i> Exhibit 5C.)
	Remark: Given 1) the Company's quarterly revenue shortfall; 2) its reduction in the revenue guidance for 2011; and 3) the concerns expressed by analysts regarding Thoratec's growth prospects, the statistically significant negative Company-specific return on November 2, 2011 is consistent with that expected in an efficient market.
2/9/2012	After market close on February 8, 2012, Thoratec released its fourth-quarter 2011 financial results. ⁴⁹ For the quarter, the Company reported revenues of \$109.4 million, GAAP income of \$15.3 million, or \$0.25 per share, and non-GAAP net income of \$22.7 million, or \$0.38 per share. This compared to analysts' consensus of \$107.6 million in revenue and non-GAAP EPS of \$0.33. ⁵⁰ The Company stated in its press release: ⁵¹
	"Thoratec had another excellent year in 2011, driven by strong adoption of HeartMate II(R) for the Destination Therapy indication. Our growth came primarily from utilization increases at existing VAD programs, driven largely by our investment in market development initiatives, but also from continued expansion of the therapy to new centers," said Gary F. Burbach, President and Chief Executive Officer.

⁴⁸ Investor's Business Daily, "Thoratec Shares Down 12% Late After Firm Lowers Sales Guidance CEO: 'Long-Term' View Intact," November 1, 2011; Reuters, "Thoratech shares drop on outlook cut," November 2, 2011, 8:48 AM; Associated Press Newswires, "Thoratec 3rd-quarter profit grows on HeartMate sales, but company cuts 2011 revenue forecast," November 1, 2011, 5:53 PM; Contra Costa Times, "News In Brief Tech ticker Biz buzz," November 2, 2011; Dow Jones News Services, "WSJ BLOG/MarketBeat: Stocks to Watch: MasterCard, Garmin and More," November 2, 2011, 9:21 AM; Theflyonthewall.com, "Thoratec gaps down below its 200-day MA after earnings, support is at...," November 2, 2011, 9:35 AM; Bloomberg, "Thoratec Down 9.7% Postmkt as Part of 2011 Outlook Misses," November 1, 2011, 4:27 PM.

⁴⁹ PR Newswire, "Thoratec Reports Fourth Quarter and Full Year Fiscal 2011 Financial Results," February 8, 2012, 4:02 PM.

⁵⁰ Reuters, "UPDATE 1-Thoratec Q4 profit, FY outlook beats Street," February 8, 2012, 4:31 PM.

⁵¹ PR Newswire, "Thoratec Reports Fourth Quarter and Full Year Fiscal 2011 Financial Results," February 8, 2012, 4:02 PM.

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	"Our fourth quarter performance was particularly encouraging, highlighted by mid-teens volume growth of HeartMate II in both the U.S. and our direct European markets," Burbach noted. "Internationally, HeartMate II had its best quarter in history, and in the U.S., we estimate that the Destination Therapy (DT) indication climbed to over 40% of HeartMate II implants, providing us with solid momentum as we enter 2012."
	The Company also issued guidance for fiscal year 2012. It expected revenues to be in the range of \$445–\$460 million. GAAP net income was expected to be in the range of \$1.21–\$1.31 per share and non-GAAP net income was expected to be in the range of \$1.58–\$1.68 per share. ⁵²
	The Company held a conference call with analysts later that day. ⁵³
	Wells Fargo raised its revenue and EPS estimates for the Company after sales came in at more than \$3 million above its estimate. The analyst also noted that the LVAD "growth rate remain[ed] relatively strong": ⁵⁴
	Summary. THOR reported Q4 2011 sales of \$109.4MM which was \$1.9MM above consensus and about \$3.2MM above our estimate. Total revenue growth was +12.1% compared to a year ago. Total Q4 pump unit sales of 917 (+9.7% yr/yr) were about 27 and 7 pumps above our estimate and consensus, respectively. The strong growth was driven by 15% unit growth in US HeartMate II (HMII) pumps, 10% growth in US Centrimag business, and over-all better than expected European sales. US HMII sales were driven largely by destination therapy (DT) and greater contribution from newer VAD programs. Revenue for the full year 2011 was \$422.7MM (+4.3%) which was at the high end of guidance of \$418-423MM. THOR acknowledged some centers have seen a recent uptick in pump thrombosis with HMII but management believes it is unrelated to the HMII system itself. THOR provided 2012 sales guidance of \$445-460MM (5-9%) which brackets consensus of \$459MM and 2012 adjusted EPS guidance of \$1.58- 1.68 (1-8%) which also brackets consensus of \$1.65. We raise our 2012 sales estimates by \$0.9MM to \$457.6MM and note that we model a stronger H1 2012 due to fewer bridge to transplant (BTT) CAP implants for HTWR in H1 2012 and a mid-2012 US launch for HTWR. We raise our 2012 EPS estimate by \$0.01 to \$1.65. We model 2013 sales of \$463.1MM and full year EPS of \$1.76.

⁵² *Ibid*.

⁵³ CQ FD Disclosure, "Event Brief of Q4 2011 Thoratec Corporation Earnings Conference Call - Final," February 8, 2012.

⁵⁴ Wells Fargo Securities, "THOR: Strong Q4 Driven By US HeartMate II Growth," February 9, 2012.

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⁵⁵ Piper Jaffray, "Back To Growth; Upgrading to Overweight," February 9, 2012.

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	THOR competes directly with HTWR in those geographies, and HTWR's already pre-released Q4
	international unit growth of ~5% y/y. We are adjusting our model to reflect increased FY12 BTT revenues, as
	our estimate for HTWR's BTT FDA approval date has moved out.
	The Upgrade to OW: Our upgrade, on the eve of losing major US market share for THOR, is predicated on: a short term view that FDA slowness and VAD center switching costs play to a slower initial launch for HTWR; and on a belief that off-label usage of HTWR will not have a major impact on THOR growth. As the transition from monopoly to duopoly is bridged in 2012 - 2013, we expect earnings leverage to return, with our estimate of 18% EPS earnings growth in 2013. On valuation, we are raising our PT to \$37 reflecting a 4.4x EV/revenue multiple on 2012 revenue of \$454 million. The multiple compares to our previous multiple of 3.9x, the increase reflecting market comp increases and the return of LVAD market growth. INVESTMENT RECOMMENDATION: Upgrading to Overweight with a \$37/share price target. Our new 4.4 EV/revenue multiple on 2012 revenue of \$454 million reflects market comp increases and the return of LVAD
	market growth. RISKS TO ACHIEVEMENT OF TARGET PRICE: Slower-than-expected ramp in Heartmate II sales for DT
	and competitive threats.
	Oppenheimer said, "overall [it was] encouraged by THOR's momentum exiting '11 as well as by its market development initiatives/pipeline progress" and commented that "THOR's market growth assumptions may prove conservative": 56
	4Q11 sales of \$109.4 (+12% y/y) beat our (\$106.2M)/consensus (\$107.5M) led by strong HeartMate II (HMII) and CentriMag growth. International HMII growth was solid despite tough comps and US destination therapy (DT) growth was particularly robust at >40% y/y. 2012 guidance was light vs our estimates, but we sense THOR is being appropriately conservative given the variable year ahead with HTWR's BTT-approval timing uncertainty. Overall, we're encouraged by THOR's momentum exiting '11 as well as by its market development initiatives/pipeline progress. Despite reducing our '12 estimates on the new guidance, THOR continues putting the pieces in place for solid market expansion and we remain focused on its DT-market exclusivity for the next three years.

⁵⁶ Oppenheimer, "Solid 4Q; Appropriately Conservative in Setting '12," February 9, 2012.

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	US rebounded. HMII units grew 15% y/y, vs. ~11% 3Q. Bridge to transplant (BTT) growth was flattish y/y, as US performance was driven by acceleration in DT units (now >40% of US HMII implants). Strong 4Q momentum supports THOR's view that last quarter's capacity constraint concerns were overblown.
	OUS ahead. Int'l implants of 214 (-4% y/y) beat our 209 estimate, with HMII well above our thinking offset by PVAD/IVAD down double-digits. THOR senses it's taking some share in existing centers. Japan launch remains on track for mid-'12 with Latin America following by year-end.
	Guidance. Guidance (assuming mid-'12 HVAD launch from HTWR) of \$445-460M sales/\$1.58-1.68 non-GAAP EPS was light vs our estimates. We believe THOR's market growth assumptions may prove conservative based on our recent survey (published 2/2) and note THOR did handily exceed its original '11 EPS guidance.
	Pipeline. Management had an encouraging meeting with the FDA in Dec. discussing potential clinical trial pathways for a faster HMIII regulatory process. We expect greater visibility in 1H. Discussions with the FDA/European regulators also appear on track for starting a PHP trial in '12.
	Adjusting estimates. Our '12E revenues drop \$10M to \$455M on lower PVAD/IVAD, greater FX headwind and slightly more conservative HMII revs. EPS moves down a touch to \$1.64 on sales & marketing/R&D investment, offset by solid GM and lower tax rate. Buybacks would be an upside.
	JP Morgan wrote that the Company reported "solid 4Q results," expecting HeartWare's U.S. launch "to dominate the conversation around both companies over the next few months:" ⁵⁷
	Thoratec reported solid 4Q results Wednesday after the close, with total revenues of \$109.4M (+12%, +9% organic) coming in \$800k above our estimate and \$1.8M better than Street consensus. On the bottom line, adjusted EPS of \$0.38 (+35%) were \$0.04 better than our forecast and topped consensus by a nickel, as a strong gross margin more than offset increased operating expenses and drove an operating margin that was 360bps above our thinking. Recall that management lowered its full year revenue guidance after a below trend 3Q performance. Wednesday's results brought the company's 2011 sales to \$422.7M (+10%, +9% organic), at the high end of its revised \$418-423M guidance but just above the low end of its prior \$422-430M range. For 2012, Thoratec is calling for revenue growth of 5-9% (+4-8% organic) with earnings projected up just 2-8% as

⁵⁷ JP Morgan, "Solid Finish to 2011 as VAD Market Growth Remains Strong," February 9, 2012.

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	it ramps investment ahead of Heartware's US launch, the timing of which remains uncertain and is likely to
	dominate the conversation around both companies over the next few months.
	Overall, Thoratec sold 917 pumps in 4Q, up 10% YOY. VAD revenues of \$108.7M grew 12%, as strong
	HeartMate II growth and a boost to the company's acute care segment following the acquisition of Levitronix offset a decline in the legacy PVAD/IVAD product lines. Revenue per implant rose 2% vs. 4Q10 to more than
	\$118k. HeartMate revenue grew just 12% to \$93.8M, \$1.1M above our estimate, while PVAD/IVAD sales of
	\$6.1M (-15%) came in \$900k below our thinking. Finally, Acute Support revenues of \$8.8M (+54%) were
	\$300k above our estimate, as THOR continues to make progress integrating the Levitronix product line into its portfolio.
	DT ramp continues to build. Destination therapy implants accounted for more than 40% of US HeartMate II units for the second straight quarter in 4Q, or approximately 258 pumps by our math. This was up about 6% sequentially and implies YOY growth of roughly 39% as Thoratec's efforts to drive increased referral activity
	appear to be paying dividends. As of year end, 103 US centers had received approval to perform DT implants, up from just 90 in 4Q10. Management expects this number to continue to grow in 2012, targeting 115 active sites by December. This should support robust growth for the DT segment, something which will be
	particularly important for Thoratec as it absorbs share losses on the BTT side of the business once Heartware's HVAD receives FDA approval.
	Credit Suisse called the Company's quarter "strong," and said its guidance was "conservatively biased and sets a relatively low bar for 2012": ⁵⁸
	Summary: THOR reported Q4 revenues of \$109.4MM, ahead of consensus (\$107.5MM) and EPS of \$0.38 vs consensus of \$0.33. The topline beat was on account of strong HMII pump revenues both US (+15% YoY)
	and ex-US (+8%) which more than offset expected sluggishness in the legacy PVAD/IVAD line. We estimate
	the US unit market grew 17% in 2011 (16% in Q4) with the ex US market growing at 7% mainly due to a very tough comp in Q4 (resulting in -1% yr / yr unit growth). Our 2012 revenue estimate for THOR of \$465MM is above the company's guidence range of \$445. \$460MM mainly due to a leter assumption for HTWP's level.
	above the company's guidance range of \$445-\$460MM mainly due to a later assumption for HTWR's launch in the US market. (THOR is assuming a mid-2012 launch while we assume a launch closer to Q4 2012). We believe THOR's guidance is conservatively biased and sets a relatively low bar for 2012.

⁵⁸ Credit Suisse, "Strong Q4; Guidance appears conservative," February 9, 2012.

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	THOR holding its own ex-US: Based on reported numbers we estimate that THOR shipped 186 HMII pumps
	in Q4 compared to 168 pumps for HTWR. In the prior two quarters we believe HTWR was just ahead of
	THOR in terms of pumps shipped so the Q4 numbers suggest that THOR either took some share in the quarter
	or managed to grow volumes at its centers, both of which are encouraging signs given HTWR's expected 2012 launch in the US market. On the call, THOR asserted that reports of power spikes / thrombus were not
	widespread, and may be technique specific in origin. We will continue to monitor the situation, but are not
	overly alarmed.
	Low DD market growth seems reasonable: Our 2012 estimates assume unit market growth in the low DD
	range for the US and ex-US markets. This is consistent with THOR's guidance. Given the growth in 2011,
	continuing growth in implanting centers and expected trial activity ex-US our model seems reasonable and
	may be a touch conservative.
	Wedbush said it was a "consensus-beating quarter" and, although guidance was "towards the low end of Street expectations," the Company was "likely being cautious due to uncertainty around HVAD launch." It reiterated its Neutral rating for the Company, stating "we remain concerned that THOR may face a challenging period once HTWR obtains approval in this market": ⁵⁹
	Healthy Q4:11 as Europe posts strong rebound. THOR reported better-than expected Q4:2011 revenues of
	\$109.4 million and EPS of \$0.38, compared to our estimates of \$108.9 million and \$0.35, respectively, and consensus of \$107.5 million and \$0.33. The consensus-beating quarter was driven by strong international
	revenues of \$21.2MM, up 13% from the prior quarter with HeartMate II revenues rebounding roughly 17%
	(total international revenues were offset by declining PVAD/IVAD sales). Meanwhile, US implant rates were
	inline with our estimates as the DT market grew ~14-15% sequentially. As revenues for the quarter did not
	present any major surprises, we are leaving our FY:2012 estimates mostly unchanged (\$453.1MM from
	\$450.6MM).
	2012 guidance towards the low end of Street expectations but THOR likely being cautious due to uncertainty
	around HVAD launch. THOR set initial FY:2012 revenue guidance of \$445-460MM, inline with our prior
	estimate of \$451MM but mostly below consensus of \$458MM. We note that THOR tends to take a
	conservative approach to setting guidance, and we believe this year is no exception as the timeline for approval
	of HeartWare's (HTWR – OUTPERFORM) HVAD in BTT remains in flux (we currently expect a Q3:12

⁵⁹ Wedbush, "Q4:11 Revenues Rebound on Strength in Europe; Reiterate NEUTRAL Due to Expectations for Slow-Down in 2012," February 9, 2012.

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	launch). Nevertheless, THOR's guidance implies just 5-9% annual topline growth, which in our view does not represent a compelling near-term growth story.
	HVAD BTT launch likely later than previously expected, but 2012 headwinds still a concern. With the single largest market worldwide currently the US market for BTT, we remain concerned that THOR may face a challenging period once HTWR obtains approval in this market. Fortunately for THOR, delays at FDA, as well as requests for supplemental data, have pushed back the likely date of HTWR's approval until Q3:2012, providing THOR with additional time to offset the looming loss of revenues. That said, we do believe that a HTWR launch in the US is nearly inevitable, and that this fact will cast a shadow over THOR's share price as clarity on the HVAD approval date approaches ever nearer. HTWR's quarterly report on 2/6/12 may provide clarity on the HVAD's timeline.
	Reiterate NEUTRAL and \$31 fair value. Our fair value of \$31 is based on a sum-of-parts analysis applying a 20% annual discount to our 2013 HeartMate II sales estimates in BTT and our 2014 HeartMate II sales in DT, applying a 1-5 multiple based on stage of clinical development to reflect risk.
	Wunderlich Securities called the Company's quarterly results "impressive," which "should boost THOR shares in the short run," but left its price target and Hold rating for the Company unchanged citing "looming competition from Heartware": ⁶⁰
	Thoratec (THOR) reported solid Q4 results Wednesday after the close. Revenues of \$109.4mm increased 12%, slightly above our estimate of \$108.6mm and above consensus of \$107.5mm. Adjusted EPS of \$0.38 also beat both our expectations and consensus expectations of \$0.33 per share. U.S. and International performance both produced double-digit growth, but Europe was especially impressive. Despite the impressive results, our rating remains unchanged, as the expectation of looming competition from Heartware (HTWR- \$69.75, Hold) likely limits upside for THOR and keeps us neutral on this story. We reiterate our Hold rating and \$35 price target on THOR.
	Key Points Q4 revenues show growth across the globe. THOR revenues of \$109.4 million beat our estimate of \$108.6 million and was above consensus of \$107.5 million. Sales grew 12% in the U.S. market and 13% in international revenues. Given the weaker pre-announced Q4 numbers out of HTWR in mid-January, the Street had assumed weak overall market growth and the expectation of soft numbers from THOR. As a result, these

⁶⁰ Wunderlich Securities, "Strong Q4 Results, as Europe Drives Upside," February 9, 2012.

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	results should boost THOR shares in the short run, but we remain lukewarm on overall market growth versus Street expectations.
	HeartMate metrics looked good in Q4. We were encouraged by the addition of eight new HeartMate II centers in the U.S. and five internationally. In addition, 11 centers have applied for Destination Therapy (DT) certification and six of these have surveys scheduled during the first quarter. The total number of HeartMate II centers increased from 149 in the U.S. and 144 internationally. This compares to 130 and 124, respectively. We view this as a short-term catalyst for THOR.
	Market growth better than expected. Overall LVAD units in Q4 was 917, slightly above our 914 estimate. This included 704 pumps in the U.S. and 213 in Europe, with Europe driving the upside to consensus. THOR's performance suggests the overall LVAD market was somewhat more robust than Street expectations, though market expectations were dampened after HTWR's preannouncement. THOR continues to push aggressively with market development plans and will further increase those efforts in 2012.
	Heartware delays could further boost our short-term outlook. The FDA panel meeting and expected FDA approval of Heartware's HVAD seemingly remains in limbo, and a further delay could boost our 2012 outlook for THOR modestly. That said, the looming threat of the upcoming HVAD approval still remains a cloud over THOR, and limits our willingness to place a higher EV/ Sales multiple on THOR. We continue to believe the HTWR threat limits the potential for upside for THOR at this point.
	Valuation. We reiterate our Hold rating and \$35 price target. Our target reflects an EV/Sales multiple of 4x on our 2012 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of looming competition from HTWR, though we will reassess our valuation after we learn more about the FDA approval for Heartware.
	Morgan Keegan left its rating and stock price target for the Company unchanged given "2012 outlook suggests current expectations are appropriate": ⁶¹
	Sales and earnings beat expectations by \$2 million on 7 extra implants and \$0.05 on improved margins, however the 2012 outlook suggests current expectations are appropriate. Given current expectations we maintain our Market Perform rating and \$32 price target.

⁶¹ Morgan Keegan, "THOR: Stable Growth; No Surprises; Steady Progress in 2012," February 9, 2012.

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-	Market development efforts, from increasing referrals to direct to consumer and increased patient ambassadors, may help to grow the market and maintain Thoratec's position within it.
	Destination Therapy is the main growth driver at this point, with Bridge to Transplant sales flat and only 30% of sales at risk from HeartWare's entrance this year. With Thoratec remaining competitive in Europe, we see no reason to expect greater impact here in the U.S.
	Thoratec has already delivered on gross margin expansion efforts and will need new product introductions to drive significant further progress, from new controllers to new generation products.
	Leerink Swann expected the Company's stock to "react positivelyto a 4Q:11 beat andeven more importantlya solid high-single-digit top-line growth 2012 outlook with significant upside potential": ⁶²
	Bottom Line: THOR shares could react positively today to a 4Q:11 beat andeven more importantlya solid high-single-digit top-line growth 2012 outlook with significant upside potential. Yesterday after the close, THOR reported 4Q:11 sales of \$109.4M (+12%)\$3M ahead of us and ~\$2M ahead of consensus. Outperformance was driven almost entirely by ongoing Destination Therapy momentum. And for the first time, THOR issued 2012 sales guidance of \$445M-\$460Mup high-single-digits y/y. To us, this solid sales growth outlook should help ease investor anxieties about the sustainability of near-term U.S. market growth and rate of DT adoption. And this guidance appears to be conservative, with THOR leaving significant room for upside, in our view, even with an expected mid-2012 competitive launch. THOR also provided encouraging commentary around market growth and the pipeline, which could further boost shares from current levels. We continue to believe that THOR will be able to maintain 70%+ share of the U.S. LVAD market in 2015, with Destination Therapy (DT) adoptionwhere THOR will remain the only FDA-approved device until at least 2015driving the majority of growth. This increasing DT uptake leaves THOR poised to drive a 10%+ top-line CAGR through 2015E.
	2012 Outlook: Solid, With Room for Upside. THOR's high-single-digit 2012 sales growth guidance assumes: (1) double-digit LVAD market growth in both the U.S. and internationally; (2) a mid-2012 competitive launch in BTT; and (3) ongoing DT momentum, reaching over 50% of total HeartMate II volumes by year-end. A generally conservative THOR management team noted even better-than-expected market growth as the primary source of potential upside. But we also think a competitive delay relative to THOR's assumptionwe

⁶² Leerink Swann, "4Q11: Solid 2012 Guidance With Room for Upside," February 9, 2012.

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	assume a late 3Q:12 HTWR (OP) approval and launchcould also drive upside. Our 2012 sales and EPS
	estimates are basically unchanged at \$453.5M (+7%) and \$1.64 (+5%) vs. \$453.7M and \$1.65 previously.
	Encouraging Pipeline Commentary. On the post-earnings conference call, THOR management also provided encouraging pipeline commentary, noting a potentially even faster regulatory pathway for the company's next-gen HeartMate III. In December, THOR met with FDA and came away feeling that the company could facilitate a faster regulatory process than that experienced with previous LVADs. THOR continues to expect HeartMate III to enter first-in-man clinical trials before year-end. Once approved, HeartMate III will be the only fully magnetically levitated LVAD, providing the ability to deliver pulsatile flow while also potentially reducing severe adverse event rates.
	Rodman & Renshaw said it was a "nice" quarter, and raised its price target for the Company to \$42 from \$40. The analyst also wrote that "THOR [could be] a solid and accretive acquisition" for another company: ⁶³
	Q4-11 revenues and GAAP EPS came in at \$109.4 million and \$0.26, respectively, vs. our estimate of \$107.1 million and \$0.24. Street numbers stood at \$107.4 million and \$0.34, although Street EPS is non-GAAP. Gross margins came in at 69.3%, a sequential downtick of 100 bps primarily due to a write-up in inventory valuation for Levitronix. Fiscal 2012 revenue guidance was established at \$445 - \$460 million, with GAAP EPS range of \$1.21 - \$1.31.
	Key Takeaways Unit growth in HeartMate II in the U.S. was 15% year/year and DT implants constituted roughly 40% of total U.S. implants. The company indicated that most of the growth came from DT implants, not BTT. International unit growth for HeartMate II was 8% year/year, and the company alluded to gaining share in Europe.
	Investors need to start honing in on 2 developments as it relates to THOR. First, we believe the "positive" FDA meeting with the HM – III could have more to do with reducing the IDE sample size (possibly by 50%); shortening the follow-up period, and getting a BTT + DT indication in one trial. If any of this in fact turns out to be true, then THOR's competitors have a real problem on their hand. Reason beingthey will be very late to the partyand once they try to get in, THOR will already be launching the fully-implantable pump. The second, which is more industry-related, is that there are subliminal forces at work evaluating how many

⁶³ Rodman & Renshaw, "Nice quarter...Raising PT to \$42...," February 9, 2012.

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	downstream re-op or complications occur with this generation of LVAD's. The goal is to gauge cost-effectiveness of continuous-flow pumps.
	Our field checks now suggest that THOR is on the radar screens of strategics. The newly instituted guidelines from CMS limiting pay for HF readmissions starting Oct 2012, combined with continued issues with competitive pumps is creating a perception of THOR being a solid and accretive acquisition.
	We eagerly await Heartware's (HTWR – Not Rated) panel announcement date. We increasingly are of the opinion that the earliest HTWR can go to panel is in the April timeframe, with the May 23rd date looking like a distinct possibility. If that is the case, we confess the briefing documents are possibly going to be treasure trove of information on why the FDA is taking so long to render a decision.
	Valuation We maintain our Market OutPerform rating, and are raising our PT to \$42, which represents 5x our fiscal 2013 sales estimate of \$504 millions Key risks include execution risk, market risk, and acquisition risk.
	Following the "Q4 beat," Canaccord Genuity said "while we would overweight HTWR, we would own both [THOR and HTWR] to capture upside in stocks cumulatively should market growth continue to be solid," and that "THOR could grow faster than guidance": ⁶⁴
	Q4 upside, predicted by our survey. Sales of \$109M (+12%) were driven by 6% Q/Q growth in US LVAD units – consistent with 5% predicted by our Q4 survey (published Feb. 5). OUS VAD units (213) were in line with us (215E). While down 4% Y/Y, OUS units grew 13% Q/Q, similar to HTWR's 18% Q/Q unit growth. Strong GM, prudent OpEx spending and lower share count (via share repurchase) offset a higher tax rate to deliver \$0.38 pro forma earnings, beating our/Street \$0.31/\$0.33.
	2012 upside hinges on FDA/HTWR - LVAD market remains "growthy" Guidance calls for revenue of \$445-460M (+5-9% Y/Y) in a global LVAD market management expects to grow in the "teens" range following 17% Y/Y worldwide market growth in '11. THOR accounts for the expected "mid-year" US launch of HTWR's HVAD. There is uncertainty regarding HVAD's timing, albeit we expect HeartWare (HTWR: NASDAQ: \$69.75 BUY) to shed light on timing next week on its earnings call. While we also expect a mid'12 HVAD launch – and model share gain in the US for HTWR (10% in '11E to 17% '12E) – we think

⁶⁴ Canaccord Genuity, "Q4 Beat; Maintain Hold; We'd Own Both THOR and HTWR," February 9, 2012.

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	THOR could grow faster than guidance even if HVAD timelines come to fruition, as the market is still very
	underpenetrated (<10%), with upside potential if the HVAD timeline slips into H2/12.
	Own both; why we favor overweighting. Relative to the broad med-tech space, we see LVADs as a strong growth sector, deserving of serious investment consideration. We favor HTWR based on our assumption that it will reach parity with THOR in the worldwide LVAD market by '15. Based on our revenue estimates, the relative valuation favors HTWR by '13 (i.e., lower multiple). There are clearly risks associated with approval timelines for both HVAD BTT and DT; therefore, while we would overweight HTWR, we would own both to capture upside in stocks cumulatively should market growth continue to be solid. Barclays Capital praised the Company's "good quarter," and "for the first time" viewed its "guidance as conservative and
	believe[d] there [was] room for upside to numbers": ⁶⁵
	MATT'S MINDSET: THOR reported a good quarter and gave 2012 guidance for the first time that we view as conservative and allows room for upside. Notably, THOR had a bit of a pickup in the 4Q, with HMII growth of 12%, including mid-teens US volume growth and OUS growth of 8% (18% unit growth excluding distributors). Guidance for 2012 assumes double-digit market growth (balanced US and OUS) with US DT growth close to the 40+% achieved in 2011. THOR is baking in a mid-2012 launch for HTWR and guidance contemplates a BT market share impact on THOR's larger and mid-size centers. Given the uncertainty around HTWR timing, we view this guidance as conservative and believe there is room for upside to numbers from better-than-expected market growth or a later HTWR approval. We highlight three key points from the call: 1) thrombosis rates have not changed from the low single digit rates seen in the literature; 2) THOR has a "qualitative belief" that it may be able to run a faster trial for HMII in the US and will update the market in the 1H12; and 3) issues brought up on the 3Q call around market lumpiness were "overblown" and "isolated"; THOR reiterated that these do not represent a new dynamic or fundamental market constraint as demonstrated by the 4Q result. Overall, we were encouraged by the result and solid HMII performance, and reiterate our 1-OW rating.
	RESULTS SUMMARY: THOR reported 4Q revenue of \$109 MM versus our and consensus \$109 MM and EPS of \$0.38 versus our \$0.32 and the Street's \$0.34. 2012 revenue guidance was \$445-\$460 MM versus the consensus of \$463 MM and EPS of \$1.58-\$1.68 versus the consensus of \$1.66.

⁶⁵ Barclays Capital, "Good Quarter – Room For Upside," February 9, 2012.

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	UBS said the Company's quarterly results and guidance had "no surprises," and that "THOR's pipeline positions the company well for the long-term": ⁶⁶
	Thoughts on stock No surprises in 4Q11 numbers / guidance / conference call & our view is largely unchanged: THOR's pipeline positions the company well for the long-term but we think stock may lag as HVAD US regulatory process & initial ramp play out. On THOR's next-gen HM3, co expressed optimism that US clinical testing would not lag Europe to the extent we have seen in the past but no details at this time.
	Inline guidance THOR guided to 2012 revs of \$445-\$460M & EPS of \$1.58-\$1.68; mid-point of ranges imply 8% cc rev growth & 5% EPS growth. Street's 2012 revs / EPS at \$459M / \$1.65 (UBS: \$458M / \$1.63). Guidance assumes HVAD US BTT launches mid-year (~30% of revs exposed to competition) w/ double-digit market growth w/ similar US / ex-US rates of growth. We est 4Q11 & 2011 US / ex-US / ww LVAD market growth of 15% / 0% / 9% & 18% / 11% / 16%; we est 2012 US / ex-US market growth of 13% / 17% / 14%.
	4Q11 revs inline; good op leverage HM2 units were inline globally: US was about 642 (+15%) vs. our 651; ex-US was about 185 (+8%) vs. our 178 (HVAD 4Q11 units: 168). Total revs of \$109M were close to Street's \$108M (UBS: \$109M). EPS came in at \$0.38 ahead of our / Street's of \$0.33 on gross margin & lower SG&A.
	Valuation – Neutral rated. DCF based price target of \$33. On 2012E, THOR trades at 18.9x P/E, 9.7x EV/EBITDA and 6% FCF yld.
	ThinkEquity reiterated its Buy rating and price target for the Company, stating that "results were better than expected," Company guidance was "beatable," and management "hint[ed] at a positive conversation with the FDA" regarding its HeartMate III trial: ⁶⁷
	We reiterate our Buy rating and \$50 price target on THOR post the company's 4Q11 report. Both revenues (\$109.4mm) and non-GAAP EPS (\$0.38) well exceeded the Street's expectations. With DT market growth expected to remain at 30-40% in 2012 per management's guidance, and our belief that THOR's competition will not enter the US market until late 2012, we view management's \$445-460mm revenue guidance to be beatable. We apply 29x our 2012E EPS of \$1.76 to arrive at our \$50 price target.

⁶⁶ UBS, "4Q11 units & 2012 guidance inline," February 8, 2012.

⁶⁷ ThinkEquity LLC, "THOR: 4Q11 Review - Strong Finish in 2011 Could Set Up Even Stronger 2012," February 9, 2012.

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	KEY POINTS: 4Q11 results were better than expected. As we had expected, THOR exceed both our and Street's revenue and EPS expectations by posting \$109.4mm (Think: \$108.7mm; Consensus: \$107.5mm) in revenues and \$0.38 (Think: \$0.37; Consensus: \$0.33) in non-GAAP EPS. The growth was driven by 40% growth in the DT volume as well as a double-digit international volume growth. Stronger than expected gross margin (71.4%) contributed to non-GAAP EPS beating consensus by \$0.05.
	Management guides to 5-9% top line growth in 2012. Citing an expected midyear entry of competition, management guideded [sic] 2012 revenues of \$445-460mm (5-9% growth) and non-GAAP EPS of \$1.58-1.68. However, we view this guidance to be conservative as if we assume HeartMate II (HM II) volume growth of 10-15% globally (not an aggressive assumption at the low end), PVAD/IVAD revenue decline of 15%, and the growth of the rest of the business (Centrimag and Grafts) remaining flat, the lower end (10% growth scenario) revenues still exceed the upper end of the guidance by more than \$5mm (Exhibit 1). Because we believe THOR's competition will not enter the US market until late 2012, our confidence level of THOR beating its own revenue outlook substantially increases.
	We make slight upward adjustments to our 2012E revenue and non-GAAP EPS estimates. Given our improved outlook, we now estimate 2012E revenues of \$465mm (+10% y/y) and non-GAAP EPS of \$1.76. As we expect no competition in the bridge-to-transplant (BTT) market until late 2012 and with the DT market growing at 30-40% per year per management's guidance, we do not think 150-175 US and 145-160 international centers generating 350 incremental HM II implant volume (1-1.2 incremental pump per center in 2012) to be challenging.
	Management hints at a potential surprise in 2012 regarding HeartMate III (HM III) trial. Hinting at a positive conversation with the FDA THOR management left open a possibility of announcing a shortened trial plan for HM III in 2012. We think that THOR is attempting to get the HM III BTT and DT approvals under one trial with 12-18 month follow up. If possible, HM III could be available in the US by end of 2015.
	We view our \$50 price target to be appropriate. With continued strength in the DT market, we expect THOR's growth to accelerate over the next 3-5 years (from 10% today to 20% by 2015), and we are comfortable applying 29x 2012E EPS of \$1.76 to arrive at our target.
	News articles attributed the increase in the Company's stock price to its strong quarterly revenue and earnings. ⁶⁸

68 Associated Press Newswires, "Thoratec shares rebound after 4th-quarter profit climbs on stronger sales of HeartMate pumps," February 9, 2012,

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	According to Bloomberg, following the disclosures on February 8, 2012, the average of analysts' price targets for the Company increased to \$37.35 from \$36.71, or 1.8%, and one out of 23 analysts with investment ratings for the Company increased its rating. (<i>See</i> Exhibit 5C.)
	Remark: Given that 1) the Company's quarterly revenues and earnings exceeded consensus expectations; and 2) analysts viewed the Company's guidance as conservative and "beatable," the statistically significant positive Company-specific return on February 9, 2012 is consistent with that expected in an efficient market.
5/2/2012	After market close on May 1, 2012, Thoratec released its first-quarter 2012 financial results. For the quarter, the Company reported revenues of \$126.8 million, GAAP income of \$25.5 million, or \$0.43 per share, and non-GAAP net income of \$30.6 million, or \$0.51 per share. This compared to analysts' consensus of \$112 million in revenue and non-GAAP EPS of \$0.39.71 The Company stated in its press release: 72
	"Thoratec had an excellent first quarter, highlighted by strong growth across both the HeartMate II and CentriMag(R) product lines," said Gary Burbach, President and Chief Executive Officer. "Our HeartMate II performance was broad-based, with unit growth of 32% in both the U.S. and international markets. Internationally, France and Germany delivered robust results, and in the U.S., the Destination Therapy (DT) indication continued to drive the majority of our growth."
	"I am encouraged by the ongoing success of our market development initiatives," Burbach added. "In particular, we believe our first quarter results reflect continued progress in generating referrals of well-

^{1:43} PM; *Dow Jones News Services*, "MARKET TALK: Thoratec CEO Addresses Blood Clot Rate Concerns," February 8, 2012, 6:01 PM; *Theflyonthewall.com*, "Thoratec jumps after earnings results, support at \$34.08, resistance...," February 9, 2012, 9:51 AM; *Bloomberg*, "Cheniere Energy, Cumberland, Hanover: U.S. Equity Movers," February 9, 2012, 4:26 PM; *Seeking Alpha*, "Shares of Thoratec (<u>THOR</u> +15.6%) extend gains," February 9, 2012.

⁶⁹ ThinkEquity LLC, "THOR: 4Q11 Review - Strong Finish in 2011 Could Set Up Even Stronger 2012," February 9, 2012.

⁷⁰ PR Newswire, "Thoratec Reports First Quarter 2012 Results," May 1, 2012, 4:02 PM.

⁷¹ Bloomberg, "Thoratec Sees 2012 Non-Gaap EPS \$1.62 to \$1.72, Est. \$1.61," May 1, 2012 4:07 PM.

⁷² PR Newswire, "Thoratec Reports First Quarter 2012 Results," May 1, 2012, 4:02 PM.

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	qualified candidates for HeartMate II therapy, as well as in facilitating program expansion across a broad group of centers, including the increasingly important open heart center segment."
	The Company also updated guidance for 2012. It stated that revenues were expected to be in the range of \$452–\$467 million, up from previous guidance of \$445–\$460 million. GAAP net income was expected to be in the range of \$1.24–\$1.34 per share, up from \$1.21–\$1.31 per share. Non-GAAP net income was expected to be in the range of \$1.62–\$1.72 per share, up from \$1.58–\$1.68.
	The Company held a conference call with analysts later that day. ⁷⁴
	JP Morgan raised its price target for the Company to \$37 from \$34 after Thoratec reported "impressive 1Q results," but maintained its Neutral rating, stating "valuation already reflects near-term upside potential and long-term challenges remain." JP Morgan also noted that Thoratec "still faces the prospect of protracted share losses over the next few years, which is likely to limit top line growth to the low single digits in 2013 and low double digits thereafter. Meanwhile, we expect investment in R&D and market development to remain heavy, resulting in minimal leverage through the income statement": ⁷⁵
	Thoratec reported impressive 1Q results Tuesday after the close, with total revenues of \$126.8M (+27%, +25% organic) coming in \$10M above our estimate and nearly \$15M better than Street consensus. On the bottom line, adjusted EPS of \$0.51 (+51%) were \$0.08 better than our forecast and topped consensus by \$0.11, as a strong gross margin and well contained operating expenses drove an operating margin that was 330bps above our thinking. While we highlighted the potential for upside in our 1Q preview, this result was clearly above even our expectations.
	Thoratec sold 1,052 pumps in 1Q, up 23% YOY and surpassing the thousand pump mark for the first time. VAD revenues of \$126.2M grew 27%, as strong HeartMate II growth and a boost to the company's acute care segment following the acquisition of Levitronix offset a decline in the legacy PVAD/IVAD product lines. Revenue per implant rose 4% vs. 1Q11 to more than \$119k. HeartMate revenue grew 28% to \$111.7M, \$11.0M above our estimate, while PVAD/IVAD sales of \$5.8M (-21%) came in \$1.0M below our thinking. Finally, Acute Support revenues of \$8.7M (+98%) were \$400k above our estimate, as THOR continues to make progress integrating the Levitronix product line into its portfolio.

⁷³ *Ibid*.

⁷⁴ CQ FD Disclosure, "Event Brief of Q1 2012 Thoratec Corporation Earnings Conference Call – Final," May 1, 2012.

⁷⁵ JP Morgan, "Market Development Efforts Paying Dividends as 1Q Results Come in Even Better than Expected," May 2, 2012.

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	DT ramp continues to build. Destination therapy implants accounted for roughly 40% of US HeartMate II units for the third straight quarter in 1Q, or 334 pumps by our math. This was up 58% YOY, accounting for the majority of the revenue upside vs. our estimates, as Thoratec's efforts to drive increased referral activity appear to be paying dividends. To date, 109 US centers have received approval to perform DT implants, up from 103 at yearend. Management expects this number to continue to increase throughout 2012, supporting robust growth for the DT segment. While the DT ramp has been central to Thoratec's story for some time, it will take on added importance as the company prepares to absorb share losses on the BTT side of the business once Heartware's HVAD receives FDA approval later this year.
	Meanwhile, international growth remains solid as well. Thoratec's OUS pump volume grew 20% YOY, as strong HeartMate II sales offset a significant decline in PVAD/IVAD units. On a dollar basis, 1Q revenues of \$22.9M grew 37% constant currency (+34% reported) thanks to the ongoing mix shift towards the higher priced HeartMate II (~88% of units vs. ~82% in 1Q11) and increased acute care sales. We'll need to wait for Heartware's 1Q results to see whether this strength means that Thoratec was able to reverse some of its recent share losses.

	Impressive start to the year, but valuation already reflects near-term upside potential and long-term challenges remain. Thoratec's 1Q results demonstrate that its efforts to stimulate market growth are paying dividends. And the company isn't standing pat as Heartware awaits FDA approval, deepening its relationship with implanting centers through a variety of programs designed to help facilitate the buildout of referral networks and aid in patient management. While we continue to view the HVAD as a very competitive pump, we expect this partnership approach to make Thoratec's share stickier at certain centers, particularly those on the smaller side and still coming up the curve.
	Despite this, however, the company still faces the prospect of protracted share losses over the next few years, which is likely to limit top line growth to the low single digits in 2013 and low double digits thereafter. Meanwhile, we expect investment in R&D and market development to remain heavy, resulting in minimal leverage through the income statement. Given this outlook, we view the stock's current valuation of 3.8x 2012E revenue and 19.7x adjusted EPS (even on our above guidance estimates) as full. Our new December 2012 price target of \$37 is based on a 4.0x multiple on our 2013 sales forecast. While we are encouraged by the progress being made at THOR and expect the stock to react positively to the 1Q results, with limited upside to our target from current levels, we maintain our Neutral rating.

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	Barclays reiterated its Overweight rating for the Company, stating that it was "encouraged by the resultand believe[d] the stage [was] set for outperformance as the year progresse[d]." The analyst attributed Thoratec's "conservatism" in its guidance to "lumpiness/lack of clear visibility over market growth trends" and "uncertainty over the timing of HTWR's HVAD BTT approval": ⁷⁶
	MATT'S MINDSET: THOR reported strong 1Q results with revenue of ~\$127 MM (up~27%; up 24% excluding a ~\$3MM HTWR benefit and up 22% organically ex- Levitronix) above consensus of ~\$112 MM (up~12%) and EPS (ex-items) of \$0.51 above consensus of \$0.41. While management raised revenue guidance by ~\$7 MM, THOR beat the consensus by ~\$15 MM (taking into account that this included some benefit from HTWR ~\$3 MM). We attribute THOR's conservatism to: 1) lumpiness/lack of clear visibility over market growth trends in any particular quarter (THOR still expects 2012 market growth in the double digits); and 2) uncertainty over the timing of HTWR's HVAD BTT approval in the US which we (and we believe THOR) models in mid 3Q12.
	Looking at 1Q results, growth was broad based with HMII volumes up ~32% both US and OUS. Notably we estimate THOR US DT growth of ~58% and BTT growth of 17% (or 9% excluding the HTWR benefit), and strong growth in key OUS markets such as France and Germany. We are bullish on THOR's pipeline - on track with a HMII pocket controller in 2012 and Japan launch expected to begin later this year. Further out, we remain upbeat on the prospects for HMIII, HM X, PHP, and the fully implantable pump and believe that THOR maybe able to accelerate its HMIII timelines with "several innovative trial design features". Net-net, we were encouraged by the result, solid HMII performance, and believe the stage is set for outperformance as the year progresses. We reiterate our 1-OW rating.
	Canaccord Genuity increased its price target for the Company to \$38 from \$36, stating that, as its LVAD survey predicted, the Company "delivered robust Q1 results that handily beat consensus projections." However, Canaccord said it "continue[d] to favor overweighting HTWR," noted that "many analysts were clearly underwhelmed by the [Company's] new guidance," and commented that "2012 – more than any year with the possible exception of 2008 (when HM2 was approved in the US for the BTT indication) – is the most challenging year to model for THOR, given the company will likely see its first commercially approved competitor enter the market (HTWR's HVAD in late Q3E)": ⁷⁷
	Investment recommendation

⁷⁶ Barclays, "Solid 1Q; Positive Market and Share Trends," May 2, 2012.

⁷⁷ Canaccord Genuity, "LVAD Market On Fire (As Expected); Raise PT to \$38," May 2, 2012.

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	As our Q1 LVAD survey predicted (report 4/24), THOR delivered robust Q1 results that handily beat consensus projections, driven by 24% US VAD growth (14%E). OUS VAD revenue also showed upside, and implies solid OUS market growth. We expect LVAD market growth to outperform the broad med-tech space, thus recommend owning THOR & HTWR. That said, we continue to favor overweighting HTWR, as we expect HVAD approval timing and expected HTWR share gain will dominate the near-term "dialogue," which may provide a better entry point in THOR shares relative to today's expected higher open.
	Investment highlights Sales of \$126.8 (+27% Y/Y) blew past our \$113ME and \$112M consensus. HM2 units grew 32% WW, owing to increasing referrals, new VAD center uptake, as well as a "CAP gap" for HTWR's HVAD, which contributed roughly \$3M to Q1 results. Importantly, THOR saw 20%+ unit growth across all center types (transplant, open-heart, etc.). Notably, OH unit growth more than doubled – a positive indicator of the increasing breadth of VAD adoption in the US.
	EPS of \$0.51 beat our \$0.42E and consensus of \$0.41 driven by revenue upside, strong GM (71.6% vs. 71.5%E) and OpEx control.
	Guidance increased, but is conservative, in our view. 2012 revenue/EPS guidance is now \$452-467M/\$1.62-1.72 from \$445-460M/\$1.58-1.68. Consensus coming in to the quarter was \$458.1M/\$1.65.
	HTWR derivative. We think the strong LVAD market implied by THOR's results is a favorable proxy for Heartware (HTWR: \$79.68 BUY), which we expect to enter the US market in late Q3.
	OUR THOUGHTS ON GUIDANCE AND CHANGES TO OUR FORWARD ESTIMATES
	2012 guidance – increased but underwhelming. That said, it's understandable, in our view. Following Q1 top-line upside of \$15M relative to consensus expectations in Q1, THOR management increased its 2012 revenue guidance by \$7M – to \$452-467M from \$445-460M. Coming into the quarter, consensus expectations called for 2012 revenue of \$458M. While many analysts were clearly underwhelmed by the new guidance, we don't take issue with it. For one, THOR clearly benefited from the absence of HVAD from the BTT market (via a CAP gap) during Q1. Secondly, we understand why management would tend toward a conservative stance specifically this year. To wit, 2012 – more than any year with the possible exception of 2008 (when HM2 was approved in the US for the BTT indication) – is the most challenging year to model for THOR, given the company will likely see its first commercially approved competitor enter the market (HTWR's HVAD in late Q3E).

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	Leerink Partners wrote that the Company had a "strong 1Q:12 beat," while 2012 guidance seems to err "on the side of caution": ⁷⁸
	Bottom Line: THOR shares will likely react positively today to a strong 1Q:12 beat and 2012 guidance raise. Yesterday after the market close, THOR reported 1Q:12 sales of \$126.8M (+27%)~\$16M ahead of us and ~\$15M ahead of consensus. Sales outperformance was driven by strength across the board, with higher HeartMate II (HM II) implant volumes in both Destination Therapy (DT) and Bridge-to-Transplant (BTT) and in both the U.S. and internationally. And THOR also raised 2012 sales guidance to partially reflect the strong 1Q beatnow \$452M-\$467M (+7%-10% y/y) from \$445M-\$460M (+5%-9% y/y) previously. Though THOR's guidance raise of just \$7M on both the top and bottom end of the range may seem underwhelming at first glance, it seems clear to usand likely the rest of the Streetthat management is being characteristically conservative. We see plenty of room for upside in 2012, driven by: 1) a competitor delay vs. THOR's mid-year assumption; 2) stronger-than expected market growth in both DT and BTT; and 3) a higher number of new center adds vs. the company's target of 15 HM II centers in the U.S. with 110-115 total DT-certified centers by year-end. We continue to believe that THOR will be able to maintain 70%+ share of the U.S. LVAD market in 2015, with Destination Therapy (DT) adoptionwhere THOR will remain the only FDA-approved device until at least 2015driving the majority of growth. This increasing DT uptake leaves THOR poised to drive a 10%+ top-line CAGR through 2015E. Our valuation remains \$45.
	2012 Outlook: Moves Higher With Still More Room for Upside. THOR's now-higher \$452M-\$467M 2012 sales guidance seems conservative to us, with possible upside from: 1) stronger LVAD market growth in both the U.S. and internationally, more in line withor even slightly below1Q levels vs. what seems to be assumed a mid-single digit range, on average, for the next 3 quarters; 2) a delayed competitor launch in BTT vs. THOR's mid-year assumption. We now assume a late 4Q12 approval vs. 3Q12 previously; and 3) more new center adds than expected, with THOR already at 5+ U.S. HeartMate II centers YTD vs. a 15-center target, and 109 DT-certified centers vs. a 110-115 center target. THOR management seems to be erring on the side of caution with 2012 guidance given inherent BTT lumpiness and given that we're still just one quarter into the year. Our new 2012 sales and EPS estimates are \$465.6M (+10%) and \$1.69 (+8.5%), from \$453.1M and \$1.64 previously.
	Pipeline in Focus. THOR noted a shift in its next-gen HeartMate III timelines, thoughencouraginglydoes not seem to be signaling a delay in approval. THOR now expects to bypass FIM and go right into a pivotal CE

⁷⁸ Leerink Partners LLC, "1Q12: A Strong Beat; Conservative Guidance Leaves More Room for Upside," May 2, 2012.

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	Mark trial in mid-2013, with a U.S. pivotal trial likely to start before year-end 2013. And THOR reiterated its belief that U.S. regulatory timelines can be significantly shortened from those with HM II.
	Oppenheimer increased its price target for the Company to \$42 from \$40 after a "significantly better than expected 1Q," however the analyst noted that its "near-term raise [was] tempered somewhat" by one-time factors, noting that "[t]he benefits of HTWR being off of the bridge-to-transplant (BTT) market for two months and overall above-trend BTT market growth are not likely to continue": ⁷⁹
	SUMMARY THOR's significantly better than expected 1Q yielded several positives that bolster its outlook: another solid international quarter, strong growth out of the small/mid sized LVAD centers in the US and better than expected gross margin/cash flow. The benefits of HTWR being off of the bridge-to-transplant (BTT) market for two months and overall above-trend BTT market growth are not likely to continue. THOR takes this into account in its new guidance, though it still looks conservative. Overall, two solid quarters in a row now should raise confidence. We also continue to believe THOR's exclusivity in destination therapy (DT) and ability to hold onto a majority share in BTT are under-appreciated. Our PT moves to \$42 from \$40 on raised estimates. KEY POINTS
	Sales/EPS were well ahead of us at \$127M (vs. \$111M) and \$0.51 (vs. \$0.39). Cash flow and gross margin were particularly impressive. Management's guidance appropriately doesn't expect the 1Q BTT trends to continue; THOR's market growth and assumed HTWR timing look conservative, however.
	Some one-timers. Sales in 1Q appeared to benefit from HTWR's lack of a continued access protocol for BTT in Jan/Feb and, we believe, as the HTWR Endurance DT trial nears completion. BTT market growth also looked above trend and we assume some pullback in 2Q in a lumpy market.
	Up and to the right. We see an LVAD market continuing to build despite quarter-to- quarter variability. We look for 18% market growth through '15. THOR's OUS performance (20% y/y) again shows solid market share/growth even with a growing HTWR for the past two years. Japan launch is expected in 2H.
	Confident pipeline update. THOR will move HeartMate III right into a pivotal CE Mark trial in mid-'13 without a pilot. PHP European approval is targeted for '14 and US approval will depend on pathway (THOR contends 510K is appropriate).

⁷⁹ Oppenheimer & Co., Inc., "Blowout 1Q: Appropriately Conservative Guidance; Raise Price Target to \$42," May 2, 2012.

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	Looking ahead. Our near-term raise is tempered somewhat by the one-time factors mentioned, but we see upside potential to our '12 estimates based on HTWR approval timing and/or stock-buybacks. We look for 11% three-year sales CAGR on DT US exclusivity, our assumed 60% BTT share for THOR longer-term and incremental Japan. Pipeline is upside.
	Piper Jaffray raised its price target for the Company to \$44 from \$37 after it reported quarterly results "above expectations and raised guidance." However, the analyst "underst[ood] management's cautiousness on their previous lumpy quarters, and the upside from the lack of BTT competition (temporary) in Q1, and the so far, inexplicable higher market growth rate of US BTT": 80
	Conclusion: THOR reported a quarter that was above expectations and raised guidance for the year. However, the amount of the raise was only about half of the positive variance from Q1. THOR results have been lumpy in the past and management is being cautious not to build too much into near term expectations. Higher earnings need to be re-invested as THOR is still in the market development stage. On the other hand, we believe competitor HTWR will not launch mid-year (due to extended FDA paperwork) allowing for some upside for THOR's BTT revenues in the US. We are raising our revenue estimate ahead of 2012 guidance, while acknowledging that THOR will re-invest much of the upside earnings. We reiterate our OW on THOR based on potential near term upside, and relative risk and reward as compared to other mid-cap medtech stocks. Our PT goes to \$44 from \$37 previously.
	Apparent Caution in Guidance: Q1 exceeded consensus revenues by \$16.2M and earnings by \$0.10, yet guidance was raised by just \$7M in revenues (midpoint: \$452.5M to \$459.5M) and \$0.04 in earnings (midpoint: \$1.63 to \$1.67). We understand management's cautiousness on their previous lumpy quarters, and the upside from the lack of BTT competition (temporary) in Q1, and the so far, inexplicable higher market growth rate of US BTT. But we see little reason to lower our estimates for the rest of the year. We are holding steady to our previous revenue assumptions, while conceding that management will re-invest upside earnings in new clinical trials and market development activities.
	Upside Beyond the Caution: After last week's FDA panel meeting for THOR's main competitor HTWR, we believe that HTWR's PMA approval for a BTT indication in the US is inevitable, but may take longer than the mid-year launch that is embedded in THOR's guidance. While THOR will eventually have to split the BTT market in the US, we are moving our mid-year HTWR launch to a mid-Q3 launch. The potential for greater upside exists if the LVAD market expands beyond the 5-7% inherent in THOR's rest of year forecast.

⁸⁰ Piper Jaffray, "Strong Beat & Raise Quarter; Raising Price Target to \$44," May 2, 2012.

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	One Step Back, Two Steps Forward: Yes, HTWR is coming, and yes, the HVAD device is smaller and easier to implant. THOR will lose market share, but we see the LVAD market as still nascent, and still growing. In Europe, having competition accelerated market growth. With HMII launching in Japan later this year, and the DT (40% of HMII revenue and growing) market development programs starting to gain momentum we continue favor Thoratec shares.
	Investment Recommendation: Overweight with new \$44/share price target based on an 4.6x (4.4x previously) EV/ revenue multiple on 2013 revenue of \$510.6 million. Our new 4.6x multiple reflects acceleration in THOR's DT market development.
	Risks To Achievement Of Target Price: Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.
	Rodman & Renshaw maintained its price target and Market Outperform rating for the Company, stating it was a "blowout quarter" followed by "too conservative" guidance: ⁸¹
	The Numbers Q1-12 revenues and GAAP EPS came in at \$126.8 million and \$0.43, respectively, vs. our estimate of \$104.2 million and \$0.30. Street numbers stood at \$111 million and \$0.41, although Street EPS is non-GAAP. Gross margins came in at 69.3%, a sequential uptick of 150 bps. Fiscal 2012 revenue guidance was upped slightly to \$452 - \$467 million. While we have tweaked our revenue estimates for fiscal 2012 to be within company guidance, we don't believe company guidance and think it is too conservative.
	Key Takeaways Unit growth in HeartMate II in the U.S. was 20%+ year/year and DT implants constituted roughly 40% of total U.S. implants. The company indicated that most of the growth came from DT implants, but BTT growth was in the high single digits in the US. International unit growth for HeartMate II was also 20%+ y/y, and the company alluded to gaining share in Europe.
	Yes, there was some contribution to the upside from a delay in Heartware (HVAD – Not Rated) enrolling additional CAP patients. However, that doesn't explain the sequential uptick in a significant manner. The rationale for uptick in BTT implants in the quarter (60% of overall units put in) seems unclear to us.

⁸¹ Rodman & Renshaw, "Blowout Quarter... Outlook strong given significant kinks in Heartware device," May 2, 2012.

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	To us, the highlight of the call apart from the numbers was the "subliminal" race to get the HM – III on the market "in time" for an HVAD DT launch. If it is true that the HM – III will incorporate a hybrid BTT + DT trial, is started in mid-late 2013, then it is entirely conceivable that a U.S. launch could occur in 2016, presumably close to an HVAD DT launch. The HM-III is expected to be fully, maglev, greater clearances, and pulsatility. We ask a rhetorical questiongiven the safety issues we have already seen with the HVAD, if HM-III solves issues with Von Willebrand syndrome, GI bleeds, and potentially makes anticoagulation regimen easier than HM-II, what would it mean for the HVAD?
	As we have said before, we are of the opinion that HTWR will get approval for an unsintered HVAD. In a rational world, the FDA has to make a decision based on the data provided to them, and nobody could argue that "insufficient" sintered data was provided. Moreover, the sintered data was in some aspects worse than the unsintered data. How could the FDA make that decision then? Our field checks suggest that an unsintered HVAD approval would be a big no-no in the field.
	Valuation We maintain our Market OutPerform rating, and our PT of \$45, which represents 5.25x our fiscal 2013 sales estimate of \$514 millions. Key risks include execution risk, market risk, and acquisition risk.
	ThinkEquity maintained its Buy rating and price target for Thoratec, stating the Company posted "record 1Q12 results, as we had previewed." ThinkEquity considered the Company's guidance "conservative" that "attempted to temper Street's expectations": ⁸²
	We reiterate our Buy rating and \$50 price target post THOR posting record 1Q12 results, as we had previewed. Revenues of \$126.8mn and non-GAAP EPS of \$0.51 were well above our and Street's expectations. While management raised its 2012 guidance with some caution, we believe management's guidance is likely to be exceeded before the year end, potentially requiring another raise. As we believe competition will arrive in the US market later than the Street's expectation, we see 2012 shaping into a significant year for THOR. We maintain our \$50 price target (27x 2012E EPS of \$1.84).
	KEY POINTS: As we expected, THOR reports a record quarter. Revenues of \$126.8mn (+27.4% Y/Y) was driven by record HeartMate II (HM II) implant volume in both the US (800+) and in Europe (170+). The corresponding non-GAAP EPS of \$0.51 was also well above our (\$0.44) and the Street's (\$0.41) estimates. Management cited the 1Q12 strength to surprisingly strong bridge-to-transplant (BTT) volume growth (+9%

⁸² ThinkEquity LLC, "THOR: 1Q12 Review - Outlook Remains In Line With Our Bullish Trajectory," May 2, 2012.

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	Y/Y), but it was clear that destination therapy (DT) use also contributed to significant growth in the HM II revenues.
	While raising both revenue and EPS guidance, management attempted to temper Street's expectations. Management's new revenue guidance only moved the range up by \$7mn (about half of how much the company beat the Street's estimate) from \$445-460mn to \$452-467mn, and corresponding non- GAAP EPS guidance was raised by \$0.04 to \$1.62-1.72 (previous: \$1.58-1.68), citing reinvestment of the portion of the earnings. While we can appreciate management's caution, we believe 2012 is likely turn into a strong year, even if the rest of the year falls short of 1Q12 performance. However, if either 2Q or 3Q revenues exceed \$120mn, management may be put in a tough position to remain conservative. We raise our revenue and EPS estimates by \$5mn and \$0.07, respectively, to recognize 1Q12 results.
	Management maintains conservative guidance on competition. Management maintained its previous guidance that HVAD will enter the US market sometime mid-year. We believe HVAD approval will be more likely in 4Q12 (possibly 1Q13), potentially making THOR's estimates conservative.
	On the pipeline front, full pivotal trial plans on HM III are announced. While no specifics on the trial designs were given, management indicated that full pivotal trials for HM III will begin in Europe in mid-2013 and in the US by end of 2013. We believe this timeline is essentially in line with management's previous guidance of HM III first-in-man by end of 2012. We note that HM III will be fully pulsatile, making it potentially require less anti-platelet therapy than HM II or HVAD.
	We maintain our \$50 price target. With raising our 2012E EPS target to \$1.84, our target price is based on 27x our 2012E EPS.
	Wunderlich Securities reiterated its Hold rating and price target for the Company, noting that "THOR tweaked guidance only slightly, reflecting expectations of a major slowdown in the back half of 2012 in conjunction with HTWR's launch in the U.S.," and that "[d]espite the compelling results, the unpredictable nature of the market and upcoming competitive threat posed by HTWR's expected entry in the U.S. leaves us neutral": ⁸³
	Summary Thoratec (THOR) reported very strong Q1 results Tuesday afternoon. Revenues of \$126.8mm increased 27%, far above our estimate of \$112.3mm and consensus of \$111.7mm. Adjusted EPS of \$0.51 also beat both our

⁸³ Wunderlich Securities, "A Rousing Start to 2012 for THOR, But What's Next?," May 2, 2012.

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	expectations and consensus expectations of \$0.41 per share. Outstanding U.S. growth led the way, and HeartMate II worldwide units experienced 32% growth. THOR did benefit from Heartware's (HTWR-\$79.68, Hold) lack of a CAP in Q1, but the results were still outstanding. THOR tweaked guidance only slightly, reflecting expectations of a major slowdown in the back half of 2012 in conjunction with HTWR's launch in the U.S. We view the guidance as overly conservative, and come in modestly higher. We reiterate our Hold rating and \$35 target.
	Key Points Q1 revenues very strong. THOR revenues of \$126.8.4 million beat our estimate of \$112.3 million and was above consensus of \$111.7 million. Sales grew 26% in the U.S. and 34% in International markets. Destination Therapy (DT) continues to boost growth, and Bridge-to-Transplant was strong as well, benefiting from HTWR's lack of a CAP (continuous access protocol) in Q1. THOR added five centers in the U.S. and one internationally. Including the increases, the total number of centers is 299 HeartMate II centers with 154 in the U.S. and 145 O.U.S.
	THOR increases guidance only modestly. THOR boosted guidance, though very modestly. THOR now expects revenues in the range of \$452-\$467mm, up from \$445-\$460mm previously. THOR increased EPS guidance as well, suggesting non-GAAP EPS of \$1.62-\$1.72, up from \$1.58-\$1.68. While there is an element of conservatism in THOR's approach, guidance reflects the normal seasonality in the LVAD market and upcoming launch of HTWR's HVAD device in later 2012. Our new estimates come in slightly above the top end of the range, reflecting the big Q1 upside.
	Results offer positive read on overall LVAD market. The LVAD market is notoriously lumpy and unpredictable, but THOR's results are eye opening and encouraging as far as the overall market is concerned. THOR is doing a very good job with market development, and referral networks appear to be paying dividends. Market should get a further boost from the availability of the HVAD in late 2012. Do THOR's results suggest a break-out for the market? We hesitate to draw that conclusion, given the historical and unpredictable trends of the LVAD market.
	Great quarter, but Heartware issue looms. Despite the compelling results, the unpredictable nature of the market and upcoming competitive threat posed by HTWR's expected entry in the U.S. leaves us neutral on the name. THOR's outlook remains clouded by the HTWR issue, but the Q1 results certainly leave us more optimistic about the overall market and THOR's ability to hold its own in the face of the HTWR launch. Still, at current levels, and with a sharp back half slowdown likely, we find it difficult to get excited about the valuation.

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	Valuation. We reiterate our Hold rating and \$35 price target. Our target reflects an EV/Sales multiple of 4x on our 2012 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of looming competition from HTWR, though we will reassess our valuation after we learn more about the FDA approval for Heartware.
	According to Bloomberg, following the disclosures on May 1, 2012, the average of analysts' price targets for the Company increased to \$39.94 from \$38.50, or 3.7%, and all 22 analysts with investment ratings for the Company maintained their ratings. (<i>See</i> Exhibit 5C.)
	Remark: While Thoratec's quarterly earnings results exceeded analysts' consensus expectations: 1) the Company's top-line growth was considered limited ⁸⁴ due to the "upcoming competitive threat posed by HTWR's expected entry in the U.S.," ⁸⁵ and because "the overall above-trend BTT market growth [was] not likely to continue"; ⁸⁶ 2) "many analysts were clearly underwhelmed by the [Company's] new guidance;" ⁸⁷ and 3) with the "LVAD market on fire," "robust" quarterly results were predicted by some. Thus, given the mixed reactions of analysts, the statistically insignificant Company-specific return on May 2, 2012 is consistent with that expected in an efficient market.
8/2/2012	After market close on August 1, 2012, Thoratec released its second-quarter 2012 financial results. For the quarter, the Company reported revenues of \$118.6 million, GAAP income of \$20.8 million, or \$0.35 per share, and non-GAAP net income of \$26.8 million, or \$0.45 per share. This compared to analysts' consensus of \$120.2 million in revenue and non-GAAP EPS of \$0.45.90 The Company stated in its press release: 91

⁸⁴ JP Morgan, "Market Development Efforts Paying Dividends as 1Q Results Come in Even Better than Expected," May 2, 2012.

⁸⁵ Wunderlich Securities, "A Rousing Start to 2012 for THOR, But What's Next?," May 2, 2012.

⁸⁶ Oppenheimer & Co., Inc., "Blowout 1Q: Appropriately Conservative Guidance; Raise Price Target to \$42," May 2, 2012.

⁸⁷ Canaccord Genuity, "LVAD Market On Fire (As Expected); Raise PT to \$38," May 2, 2012.

⁸⁸ *Ibid*.

⁸⁹ PR Newswire, "Thoratec Reports Second Quarter Results," August 1, 2012, 4:02 PM.

⁹⁰ Bloomberg, "Thoratec 2Q Adj. EPS Matches Est., Sales Miss," August 1, 2012 4:20 PM.

⁹¹ PR Newswire, "Thoratec Reports Second Quarter Results," August 1, 2012, 4:02 PM.

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	"We achieved solid growth during the second quarter, driven by continued development of the Destination
	Therapy (DT) opportunity, and delivered the strongest six-month financial performance in the company's
	history," said Gary F. Burbach, President and Chief Executive Officer. "We were particularly pleased with
	HeartMate II unit growth of 13 percent during the second quarter and 22 percent for the first half of 2012,
	demonstrating healthy underlying market trends and HeartMate II's strong competitive position," he added.
	•••
	"Based on the strength of our performance in the first half of the year, the underlying momentum in the VAD
	market, and our confidence in Thoratec's ongoing competitive position, we are increasing our revenue and
	earnings guidance for 2012," Burbach commented. "Looking forward, we remain focused on driving
	continued adoption of HeartMate II in the under-penetrated DT market through our range of market
	development initiatives, as well as on advancing our pipeline of exciting new technologies, with a goal of
	initiating pivotal trials for two major new product platforms, HeartMate III and HeartMate PHP, during 2013."
	The Company also updated guidance for 2012, stating that it expected revenues to be in the range of \$460–\$470 million, compared to previous guidance of \$452–\$467 million, GAAP net income to be in the range of \$1.28–\$1.34 per share compared to previous guidance of \$1.24–\$1.34, and non-GAAP net income to be in the range of \$1.67–\$1.73 per share compared to previous guidance of \$1.62–\$1.72.92
	The Company held a conference call with analysts later that day. ⁹³
	Canaccord Genuity reiterated its Hold rating and cut its price target for the Company to \$35 from \$38, after its U.S. ventricular assist device volume declined more than expected and earnings were below the analyst's expectations. Canaccord noted that while the Company's 2012 guidance was increased, "consensus numbers likely to decline": ⁹⁴
	Investment recommendation
	As our Q2 VAD survey predicted (published on 7/30), THOR's US VAD volume declined Q/Q, but worse
	than our data implied – i.e8% Q/Q vs2%E. US units grew just 3% Y/Y, even though THOR benefited to
	the tune of 40 units owing to HTWR having a "CAP-gap" in its DT trial during Q2. The weaker US
	performance was partially offset by solid OUS VAD growth (+10% vs. 9%E). With the HTWR HVAD launch

⁹² *Ibid*.

⁹³ CQ FD Disclosure, "Q2 2012 Thoratec Corporation Earnings Conference Call – Final," August 1, 2012.

 $^{^{94}}$ Canaccord Genuity, "Q2 LIGHT; MAINTAIN HOLD & LOWER PT TO \$35," August 1, 2012.

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_	expected in September, we expect THOR's US unit growth to decline to 5% Y/Y in H2/12 from 13% in H1. We maintain our HOLD rating and lower our price target to \$35. Investment highlights
	Sales of \$119M (+7% Y/Y) fell short of our \$124ME and \$120M consensus. WW VAD unit growth retreated to 4% Y/Y from 23% in Q1, owing largely to significant declines in its legacy PVAD/IVAD volume, partially offset by HM2 volume (+13% Y/Y), which was still below our estimate.
	EPS of \$0.45 missed our \$0.49E and matched consensus. GM was strong (71.9% vs. 71.3%E), but OpEx was higher.
	Guidance increased, but consensus numbers likely to decline. 2012 guidance is now \$460-470M/\$1.67-1.73 from \$452-467M/\$1.62- 1.72; consensus was at \$472M/\$1.76. We reduce our estimates.
	HTWR derivative. Our survey work over the past several quarters suggests ~30% US VAD unit share for HTWR in the first 12 months post-launch, which compares to our 27%E in 2013. We continue to recommend HeartWare (HTWR: NASDAQ: \$87.64 BUY, \$101 PT).
	Credit Suisse reiterated its Outperform rating and price target for the Company, but noted that sales were "light." Credit Suisse reduced its estimated for the Company "principally due to a greater than expected decline in the PVAD/IVAD business": ⁹⁵
	2Q12 HMII Growth Solid; Sales Light on PVAD/IVAD: THOR reported Q2 revenues of \$118.6MM, +8 cc % YoY, below consensus of \$120.3M and EPS of \$0.45 inline with consensus \$0.45. Topline weakness was driven by PVAD/IVAD sales (down 50% YoY) with decent US and very strong OUS HMII pump unit growth of +8%/+32%, respectively (+13% WW). For FY12 THOR increased sales/EPS guidance to \$460-\$470M/\$1.67-\$1.73 from \$452-\$467M/\$1.62-\$1.72 on \$10-\$15M in added HMII sales partially offset by a \$7M reduction from worse PVAD sales/Fx. We're adjusting our 2012 sales/EPS estimates to \$469MM/\$1.74 from \$477M/\$1.77 principally due to a greater than expected decline in the PVAD/IVAD business. Raising 2013 EPS to \$1.75 from \$1.74.
	Expecting slightly lower 2H market growth: 2Q12 OUS HMII unit growth was strong yet again at +32% (we estimate 35% for the market ex-PVAD/IVAD) while 8% growth in the US was respectable given 1Q's strength. Although, HTWR appears to be taking OUS share, the OUS market itself appears to be growing robustly (est. 20% unit growth in the Q w PVAD/IVAD). THOR expects 2H WW market growth to moderate

⁹⁵ Credit Suisse, "In line 2Q; HM II solid," August 1, 2012.

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_	slightly vs. 1H given 1H's strength (we estimate 12% 2nd H versus 15% 1st H WW overall unit growth inclusive of PVAD/IVAD).
	Reiterate Outperform/\$41 TP: The two key headwinds for THOR are uncertainty regarding sustainability of overall market growth and the competitive equilibrium between HTWR and THOR. Admittedly, HTWR is selling more permanent pumps ex-US than is THOR (est 214 v. 195 in 2 Q), but the market realities in the US differ from those in Europe (i.e., BTT / DT distinction), and ultimately long term value will be defined by next generation designs. We assume continued mid-teens market volume growth through the end of a decade and likely duopoly status between THOR and HTWR. While HTWR is likely to be the noticeably better performer in the short / medium run given likely US share encroachment, our DCF suggests long term value creation for THOR.
	Piper Jaffray called the Company's quarterly results "solid," stating that "[i]mportantly the [revenue] miss was not attributed to their LVAD business, but more to the declining (albeit at a faster than expected rate) PVAD/IVAD product line." The analyst lowered its 2012 revenue estimate by \$3.7 million and its adjusted EPS estimate by \$0.01:96
	Conclusion THOR missed our Q2 overall revenue by 2.1%, coming in at \$118.7M (up 6.7% y/ y), but met our HeartMate II (HMII) expectations (up 8.8% y/y). Earnings were in line and guidance was raised to meet current Street EPS expectations, and almost meet consensus revenue estimates. Our estimated revenues reflect an accelerating productivity of the market development efforts for HMII, and a slight delay in our assumed launch of HTWR's competitive device. We continue to like the growth potential for the LVAD market overall. Once the drama of having a second entrant (HTWR) enter the US market subsides, we expect continued market growth of 10-15% annually owing to the early stages of penetration with the new and improved LVAD technologies. We reiterate our Overweight rating and \$44 price target.
	Guidance Raised Cautiously as New Entrant HTWR Looms: Reported revenues for Q2 were \$118.7M, missing our estimate by \$2.5M. Importantly the miss was not attributed to their LVAD business, but more to the declining (albeit at a faster than expected rate) PVAD/IVAD product line. Guidance for 2012 was raised, but only by roughly the same amount that we and consensus had already exceeded previous guidance. Qualitatively, management seemed more confident on the Q2 conference call. We attribute this to the sustained growth worldwide for HMII, and what seems to be management's increasing belief that they can

⁹⁶ Piper Jaffray, "Sustained OUS Growth Headlines Solid Quarter," August 1, 2012.

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	compete strongly in the face of HTWR's US product launch. We are holding steady to our previous revenue
	assumptions for HMII, while trimming our PVAD/IVAD numbers to reflect the accelerating decline.
	OUS Soared; CMS Steady: HMII unit sales were up 32% y/y OUS on what management described as broad based growth. The strong Q2 followed a strong Q1, the difference being Q1's strength came more from direct markets, and Q2's strength came more from distributor markets. Roughly 65% of European revenues come from direct sales markets. While it is too soon to declare sustainable market share gains for THOR in Europe, the 32% growth does reinforce our belief in growing worldwide demand. CMS final inpatient DRG payments for FY13 (starts Oct 1) were published last night, with only a nominal increase from the proposed rates published in May; we see total DRG 001 increasing slightly more than the original 8% proposal. We view
	reimbursement as only a minimal risk for LVADs in the near term.
	UBS Equities noted that the Company's revenue fell "a little short in the quarter," however it raised its 2013 estimates for the Company and advised investors to "stay patient while products come into focus and HVAD launch dynamics play out": ⁹⁷
	Slight beat on HM2 should probably overshadow ~2% rev miss Global HM2 units were 945 (+13%) vs. our 941 while older PVAD/IVAD miss caused total revs to fall a little short in the quarter. Driven by the ex-US mkt, 2Q12 global LVAD market growth is probably slightly better than we expected, maybe ~12% vs. our 9% (1Q12: 33%). Mgmt is looking for sustained high-teens mkt vol growth going forward, we model 15%. Broadly, the LVAD mkt appears healthy.
	Franchise defense THOR articulated its view of the mkt, helping to frame where HVAD will compete early on. Close to 20% of US HM2 units are being implanted at low-vol centers that currently may not be able to justify carrying 2 pumps, although they probably will in the future if growth continues. DT accounted for ~45% of HM2 vol in 1H12; we are not modeling off-label HVAD use in DT. Broadly, we remain comfortable with our HVAD BTT share assumptions (3Q12 launch; 19% in 4Q12; 28% in 2013).
	All about 2013 We raised 2013 sales by ~\$10M to \$498M (+5% YOY) on better mkt growth & benefit from controller upgrades; we raised EPS by \$0.08 to \$1.85 (+6% YOY) on revs, flat op mgn & share repo. Looking to 2014, we model rev / EPS growth of +3% / +6% but have not given much credit for PHP or HM2 in Japan. These

⁹⁷ UBS Equities, "HM2 Solid," August 1, 2012.

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	opportunities could drive acceleration but we think investors can stay patient while products come into focus and HVAD launch dynamics play out.
	Valuation Neutral rated; DCF-based price target of \$35.
	Wedbush Securities Inc. wrote that "Given the relative unimportance of PVAD/IVAD to our investment thesis, we do not view the quarter as a significant miss overall. That said, we expect there may be some disappointment from investors who were looking for upside surprise": ⁹⁸
	Revenues decline in Q2 as expected, but slightly steeper than estimated due to non-HMII sales. THOR reported Q2 revenues of \$118.6MM compared to our estimate of \$121.3MM and consensus of \$120.8MM. We note that the Street had widely expected a drop in revenues from the unusually strong Q1 (\$126.7MM). Management highlighted that revenues were negatively impacted by faster-than-expected erosion in PVAD/IVAD sales as patients move to alternative BiVAD therapies. Given the relative unimportance of PVAD/IVAD to our investment thesis, we do not view the quarter as a significant miss overall. That said, we expect there may be some disappointment from investors who were looking for upside surprise.
	Our total LVAD market outlook remains intact. We continue to expect overall lumpiness in the US LVAD market in the near-term, but remain encouraged that the market will continue to grow at a double-digit pace (on an annualized basis) going forward driven by DT. Outside of the US, we estimate that HeartMate II unit volume was roughly flat sequentially, but we await Q2 results from HeartWare (HTWR – OUTPERFORM) next week for additional clarity on the overall market. We note that our Q3 ex-US HMII unit estimate (178; -12% q/q) reflects the impact of summer seasonality, which is especially prominent in Europe. Management stated that cardiologist referrals remain the limiting factor to total market growth. Meanwhile, penetration of new geographies such as Japan (potential HMII launch late this year) could provide some additional upside to our estimates, but this remains somewhat speculative at the moment, in our view.
	We expect the coming months to be subject to volatility on timing and impact of competitive HVAD launch. In our view, the key focus for THOR investors during the coming months will be on the timing of HTWR's BTT approval and evolving expectations for HMII market share erosion amidst the HVAD's initial launch results. We continue to expect HVAD approval in late Q3:12.

⁹⁸ Wedbush Securities Inc., "Q2 Light on Non-HMII Revs, not a Meaningful Miss; Near-Term Focus on HVAD Approval; Reiterate NETURAL," August 1, 2012.

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	Reiterate NEUTRAL and \$33 fair value. Our fair value of \$33 is based on a sum-of- parts analysis, applying a 20% annual discount to our 2013 ex-US HeartMate II sales and our 2014 US HeartMate II sales (BTT and DT), applying a 1-5x multiple based on stage of clinical development to reflect risk. We continue to expect THOR to trade range-bound until the US DT market shows signs of reaching an inflection point and/or investors gain better clarity on the scope of HVAD's competitive threat.
	J.P. Morgan said the Company's results "may be somewhat disappointing to investors" and warned that it was cautious on the stock because of "competition looming and Street estimates for 2013 [that were] overly aggressive": ⁹⁹
	Thoratec reported mixed 2Q results Wednesday after the close, with total revenues of \$118.7M (+7%, +5% organic) coming in \$1.5M below Street consensus. On the bottom line, adjusted EPS of \$0.45 (+2%) were inline with consensus, as a strong gross margin helped to blunt the impact of heavy operating spend. While these results may be somewhat disappointing to investors coming on the heels of a blowout first quarter performance, taken together they point to healthy growth for the VAD market overall in 1H12. More important for THOR shares in the near term is the pending FDA approval of Heartware's HVAD, which we continue to expect sometime during 3Q. With competition looming and Street estimates for 2013 overly aggressive, in our view, we remain cautious on the stock.
	Thoratec sold 985 pumps in 2Q, up just 4% YOY and short of our 1,027 estimate. While some volatility in implant rates is to be expected, this result suggests that the 23% jump in pumps sold during the first quarter may have included some pull forward of demand. VAD revenues of \$118.1M grew 7%, as solid HeartMate II growth and a boost to the company's acute care segment following the acquisition of Levitronix offset a steep decline in the legacy PVAD/IVAD product lines. Revenue per implant rose 3% vs. 2Q11 to \$120k. HeartMate II sales grew 9% to \$106.3M, in-line with our estimate, while PVAD/IVAD revenues of \$3.8M (-50%) came in \$2.0M below our thinking. Finally, Acute Support sales of \$8.0M (+51%) were \$800k shy of our estimate.
	DT ramp continues to build. Destination therapy implants accounted for roughly 42% of US HeartMate II units in 2Q, or 343 pumps by our math. This was up 27% YOY, as Thoratec's efforts to drive increased referral activity appear to be paying dividends. To date, 112 US centers have received approval to perform DT implants, up from 103 at year-end. Management expects this number to continue to increase throughout 2012, supporting robust growth for the DT segment. While the DT ramp has been central to Thoratec's story for

⁹⁹ J.P. Morgan, "Mixed 2Q as Focus Shifts to Looming Competition," August 1, 2012.

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	some time, it will take on added importance as the company prepares to absorb share losses on the BTT side of the business once Heartware's HVAD receives FDA approval later this year. In 2Q, we estimate that Thoratec's BTT volume fell 11% to 430 pumps. Combined with surprising strength from this segment in the first quarter (+8%), we estimate that the company's BTT sales were down 1% during the first half of the year.
	Barclays reiterated its Overweight rating for the Company, and said its quarterly financial results were in line with its expectations, but also acknowledged that "some investors were anticipating a beat and…the stock could be weak today": ¹⁰⁰
	MATT'S MINDSET: THOR's reported 2Q results that were in-line on the top line and EPS matched the consensus estimate of \$0.45. Given a strong 1H, THOR raised 2012 revenue guidance to \$460-\$470 MM (vs. \$452-\$467MM) to account for higher HMII sales (+\$10-\$15 MM), partially offset by lower PVAD/IVAD sales and FX (-\$7 MM). 2012 EPS was also increased to \$1.67-\$1.73 (vs. \$1.62-\$1.72). Notably, THOR's revised outlook includes several key assumptions: 1) HTWR approval "sometime" in the 3Q; 2) a flat US BTT market with continued DT and OUS growth; 3) overall 2H market growth slightly below the 1H; 4) 5-10% HMII growth in the 2H; 5) longer-term LVAD market growth in the high teens. These appear reasonable to us, and we see potential sources of upside from later-than-expected HVAD approval, strong market growth, and better share retention.
	We continue to be positive on the LVAD market and highlight strong DT growth and THOR's competitive positioning, noting that THOR is more optimistic that the Street in terms of share retention post HVAD approval. Further, we like the LVAD market's potential for growth through increased penetration into less sick patients, increased market awareness, and geographic and center expansion. Looking beyond 2012, we are bullish on THOR's pipeline including: 1) Japan launch expected later this year; 2) PHP CE Mark study in early 2013 (US timeline remains in flux) and 3) HMIII CE Mark study in mid 2013 with US pivotal likely beginning by late 2013. Net-net, while the 2Q was in-line, we think some investors were anticipating a beat and note that the stock could be weak today. Despite this, we reiterate our 1-OW rating and would be buyers based on our view of the LVAD market, THOR's assets, and valuation.
	Leerink Partners LLC said the Company had "solid" quarterly results despite a "sales misslargely driven by the non-core PVAD/IVAD business." The analyst maintained its price target and rating for the Company: 101

¹⁰⁰ Barclays, "In-line 2Q; Guidance Nudged Up," August 2, 2012.

¹⁰¹ Leerink Partners LLC, "2Q12: DT Momentum Continues Despite Sales Miss," August 2, 2012.

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-	Bottom Line: Yesterday afternoon THOR reported what we view as solid 2Q:12 resultswith \$118.7M in
	sales (+6.7%, +7.7% ex. FX), ~ \$2.5M ahead of our estimate driven by stronger HeartMate II volumes
	primarily related to continued Destination Therapy (DT) momentum. But 2Q:12 sales fell below consensus at
	\$120.6M despite a ~40 pump benefit from HTWR's DT trial enrollment gap. Still, the sales miss was largely
	driven by the non-core PVAD/IVAD business as DT momentum clearly continues to build. With a HTWR
	Bridge-to-Transplant (BTT) launch imminent, we view the Destination Therapy indication as the foundation of
	THOR's sustainable long-term growth andto usremains the metric on which investors should focus. Over the next few years, we believe THOR can drive at least 20%-30% DT growth, which should more than offset
	BTT market share declines due to competition to drive ~10% top-line growth on average. Still, in the near
	term, THOR shares could trade in a tight range as investors anticipate what we believe will be a late 4Q:12
	HTWR approval in BTT. We continue to rate THOR shares Outperform with a \$45 valuation.
	T.F.
	Destination Therapy Momentum Drives Growth. In 2Q:12, THOR generated 925 HeartMate II implants in the
	quarter with 37% y/y DT implant growth offsetting a 5% y/y BTT decline, based on our estimates. Even
	excluding the benefit of ~40 pumps related to HTWR's DT Continued Access Protocol (CAP) gap, THOR
	delivered 25% y/y DT volume growth despite a tough comp y/y and an unusually strong 1Q. Over the last four
	quarters, THOR has delivered 50% DT implant growth. With new centers opening (another three DT centers
	added in the quarter) and THOR's market development initiatives underway, we believe THOR can drive sustainable 20%-30% DT volume growth over the next few years. We believe this level of growth will be
	sufficient to offset BTT declines, driving THOR sales growth in line with our projected 11% CAGR over the
	2010-2015E timeframe.
	2012 & 2013 Outlook Adjusted Slightly. Our new \$466.7M (+10.4%) 2012 sales estimate is in line with
	management's upward revised \$460M - \$470M 2012 sales guidance range and slightly ahead of our prior
	\$465.6M estimate. Management's revised sales guidance now reflects a 3Q:12 HTWR BTT launch vs. our
	late 4Q:12 assumption. According to THOR, a more positive HeartMate II outlook boosts 2012 guidance by
	\$10M-\$15M, or ~110-115 pumps. But our 2013 sales estimate moves a shade lowerto \$501.4M (+7.4%)
	from \$508.8M, driven by lower PVAD/ IVAD sales. Our 2012 and 2013 EPS estimates are now \$1.70 (from \$1.69) and \$1.87 (from \$1.89).
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	Oppenheimer said that, while the Company's second quarter was "slower," it was "[c]onsistent with guidance that 1Q had some one-timers and 2Q comps were the toughest of '12": ¹⁰²

¹⁰² Oppenheimer & Co., Inc., "Market Commentary Robust Again; Guidance Raised," August 2, 2012.

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	THOR delivered another solid quarter in 2Q and raised '12 guidance. Sales were ahead of our thinking and a touch below consensus at \$118.6M (Opco/Street at \$115.3M/\$120.4M). EPS was ahead of us at \$0.45 (Opco/Street at \$0.43/\$0.45). The message was consistent with what we heard in 1Q: market growth in LVADs remains robust. THOR has used its strong performance to reinvest in market initiatives for future growth. We still believe THOR's exclusivity in destination therapy (DT) and ability to hold onto a majority share in bridge-to-transplant (BTT) are underappreciated. And as we move into '13, we expect increased focus on the new Japan opportunity and the pipeline. KEY POINTS
	Key Points Strong 1H. Consistent with guidance that 1Q had some one-timers and 2Q comps were the toughest of '12, 2Q was slower sequentially (though better than we expected, particularly OUS HeartMate; II). 1H12 sales growth was 17%. Gross margin expanded again in 2Q y/y (90bps). Cash flow was strong (\$70M generated in 1H).
	Pipeline on-track. THOR will launch a new (smaller/lighter) pocket controller by year end. CE Mark trials for the percutaneous heart pump (PHP) will begin in early '13 and for HeartMate III in mid-2013. PHP is not currently in our longterm estimates. We see significant potential for HeartMate III, a smaller/fully magnetically-levitated pump.
	Japan launch in 2H. Management is now looking for a Japan launch of HMII in late 4Q versus early 4Q just based on HMIIs expected regulatory review slot. We see Japan LVAD market potential of ~1M patients. We expect this large new opportunity to be an increasing driver from 2013.
	Guidance raised again. Sales are expected \$460-470M from \$452-467M and EPS \$1.67-1.73 from \$1.62-1.72. HMII guidance was raised by \$10-15M, partially offset by lowered PVAD and foreign currency. THOR assumes HTWR launch here in 3Q.
	Raising estimates. Our '12E and '13E sales/EPS each go up \$2M/\$0.02. Our '13E EPS of \$1.85 is ahead of consensus and we see buybacks as upside to Street expectations. THOR ended 2Q with \$280M in cash and no debt.
	ThinkEquity reiterated its Buy rating and price target for the Company, stating that "[w]hile 2Q revenues fell short of consensus, the global HeartMate II (HM II) adoption appeared to be solid." However, the analyst decreased its 2012 and 2013 EPS and revenue estimates for the Company: ¹⁰³

ThinkEquity LLC, "THOR: 2Q12 Review - Management Remains Bullish on 2H12 by Raising 2012 Guidance," August 2, 2012.

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	We reiterate our Buy rating and \$50 price target on THOR post 2Q12 report. 2Q12 revenues of \$118.7mn was a bit lighter than consensus (\$120.4mn), but non-GAAP EPS of \$0.45 was in line with our and Street's estimates. Management raised 2012 revenue guidance to \$460-470mn and tightened 2012 non-GAAP EPS range by \$0.05 to \$1.67-1.73. We are encouraged by management's confidence in 2H12 against potential new US competition, and we believe THOR shares could substantially appreciate if head-to-head results exceed the Street's outlook. We view our \$50 price target to be reasonable.
	KEY POINTS: While 2Q revenues fell short of consensus, the global HeartMate II (HM II) adoption appeared to be solid. The 2Q revenues of \$118.7mn was a bit light, but 13% y/y growth in HM II implant volume was high encouraging. It appeared that approximately 770-780 HM IIs were implanted in the US and 170-180 HM IIs were implanted in Europe, slightly down from 1Q level, but not a significant pull back, implying continued increase in HM II adoption, particularly in destination therapy (DT) market. Management indicated that 45% of HM IIs are now being implanted for DT use, an increase from 1Q's 40%. On the earning side, as we had expected, THOR reported non-GAAP EPS of \$0.45.
	To our surprise, management slightly raised 2012 revenue outlook while tightening the non-GAAP EPS range. Despite management's reiteration of its previous guidance that HeartWare (HTWR) could receive the FDA approval on HVAD in 3Q12, management raised THOR's 2012 revenue outlook to \$460-470mn (from \$452-467mn). The previous non-GAAP EPS of \$1.62-1.72 was tightened to \$1.67-1.73. Management indicated that despite HVAD coming to the US market, they would be ready to protect the BTT market share, contrary to the Street's general view on the matter. We believe THOR management's 2H12 confidence stems from either (1) its belief that HVAD will be approved much later than their 3Q approval expectation, or (2) its belief that THOR enough support from centers on using HM II for BTT over HVAD. We believe HVAD approval will be later than 3Q12.
	Once HVAD arrives in the US market, THOR's share performance will be directly correlated to quarterly performance against HTWR, currently a favorable risk/reward scenario, in our view. Because the Street is heavily favoring HVAD's early adoption in the US market post approval, there is a greater chance that THOR could pleasantly surprised [sic] the Street with HM II revenues above consensus. A strong performance in a head-to-head quarter could drive THOR shares up substantially, as the downside at the current share price appears limited.

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	We continue to view our \$50 price target to be appropriate. We believe THOR is likely to exceed 2012
	consensus EPS of \$1.73 (Think: \$1.81), and with potential strong performance against HTWR in 2H, we view our 27x 2012E EPS of \$1.81 is reasonable.
	Wunderlich Securities called the Company's quarterly results "mixed," noting that it benefited from Heartware's "lack of a CAP in Q2, so the 'miss' will be a little more disappointing to the Street": 104
	Thoratec (THOR) reported mixed Q2 results Wednesday afternoon. Revenues of \$118.6mm increased 6.7%, slightly above our estimate of \$118.0mm but below consensus estimate of \$120.8mm. Adjusted EPS of \$0.45 beat our estimate by \$0.01 and was in line with consensus. THOR did benefit from Heartware's (HTWR-\$87.64, Hold) lack of a CAP in Q2, so the "miss" will be a little more disappointing to the Street. Still, these results follow a strong Q1 from THOR, so this represents something of a normal step back that we have seen in the LVAD market in the past. THOR tweaked guidance slightly, and it continues to reflect expectations of a slowdown in the back half of the year in conjunction with HTWR's launch. We reiterate our Hold rating and \$35 target.
	Key Points
	Mixed Q2 performance after Q1 strength. THOR revenues of \$118.6mm beat our estimate of \$118mm but were shy of consensus of \$120.8mm. Our estimate assumed a modest "give back" after strong Q1 results and that's what we believe occurred. Sales grew 5% in the U.S. and 6% Internationally. THOR sold a total of 985 pumps, basically right in line with our estimate, but shy of Street expectations. THOR added five centers in the U.S. and one internationally. This brings THOR to 309 HeartMate II centers overall, with 158 in the U.S. and 151 OUS.
	Results reflect another positive, but uneven read on LVAD market. The LVAD market is lumpy and unpredictable, but we see THOR's results as generally encouraging once again as far as the overall market is concerned, despite the miss. The lack of CAP for HTWR did inflate THOR's Q2 numbers to a degree, so the Street's disappointment could be magnified. But THOR continues to do an excellent job with market development and referral networks. We continue to expect availability of HVAD in late 2012 will give the overall market a further boost.

Wunderlich Securities, "Mixed Q2 Results As LVAD Market Remains on a Volatile, Upward Trajectory," August 2, 2012.

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	THOR tweaks guidance. THOR boosted prior guidance slightly, suggesting revenues in the range of \$460-\$470mm versus a prior range of \$452-\$467mm. THOR increased EPS guidance slightly, suggesting non-
	GAAP EPS of \$1.67- \$1.73, up from \$1.62-\$1.72. Both the revised revenue and EPS guidance remain slightly below current Street consensus. Our estimates remain slightly above the top end of the guidance range, despite
	the expected impact of Heartware's HVAD approval later this year.
	Heartware looms, but market growth could help offset impact of market share loss. The upcoming FDA approval of HVAD presents a well known competitive threat to THOR, and manifests itself in Street estimates for THOR in 2013, and our neutral rating on the shares. Upbeat LVAD market growth leaves us increasingly positive on the longer-term outlook, however, as continued market penetration should allow both THOR and HTWR to ultimately thrive.
	Valuation. We reiterate our Hold rating and \$35 price target. Our target reflects an EV/Sales multiple of 4x on our 2013 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of looming competition from HTWR, but we are increasingly confident that strong LVAD market growth can support both players. We believe long-term investors should look for pullbacks toward the \$30 level to buy the shares.
	According to Bloomberg, following the disclosures on August 1, 2012, the average of analysts' price targets for the Company decreased to \$40.21 from \$40.50, or -0.7%, and all 20 analysts with investment ratings for the Company maintained their ratings. (<i>See</i> Exhibit 5C.)
	Remark: Given that 1) while certain investors were "looking for upside surprise," the Company's actual revenue results fell short of analysts' consensus; 2) several analysts anticipated that the market would react negatively to the Company's revenue shortfall; and 3) while the Company increased its guidance for 2012, it's revised guidance was "only by roughly the same amount that [] consensus had already exceeded previous guidance," and analysts expected 2012 "consensus numbers likely to

¹⁰⁵ Wedbush Securities Inc., "Q2 Light on Non-HMII Revs, not a Meaningful Miss; Near-Term Focus on HVAD Approval; Reiterate NETURAL," August 1, 2012.

Wunderlich Securities, "Mixed Q2 Results As LVAD Market Remains on a Volatile, Upward Trajectory," August 2, 2012; Wedbush Securities Inc., "Q2 Light on Non-HMII Revs, not a Meaningful Miss; Near-Term Focus on HVAD Approval; Reiterate NETURAL," August 1, 2012; J.P. Morgan, "Mixed 2Q as Focus Shifts to Looming Competition," August 1, 2012; Barclays, "In-line 2Q; Guidance Nudged Up," August 2, 2012.

¹⁰⁷ Piper Jaffray, "Sustained OUS Growth Headlines Solid Quarter," August 1, 2012.

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	decline," ¹⁰⁸ the statistically significant negative Company-specific return on August 2, 2012 is consistent with that expected in an efficient market.
11/2/2012	After market close on November 1, 2012, Thoratec released its third-quarter 2012 financial results. ¹⁰⁹ For the quarter, the Company reported revenues of \$117.8 million, GAAP income of \$24.3 million, or \$0.41 per share, and non-GAAP net income of \$29.2 million, or \$0.49 per share. This compared to analysts' consensus of \$111.7 million in revenue ¹¹⁰ and non-GAAP EPS of \$0.39. ¹¹¹ The Company stated in its press release: ¹¹²
	"Thoratec delivered excellent results during the third quarter, demonstrating continued momentum in the global VAD market as well as HeartMate II's strong competitive position," said Gary F. Burbach, President and Chief Executive Officer. "HeartMate II unit volume expanded by 27% during the third quarter and 23% for the first nine months of the year, driven by the U.S. Destination Therapy indication and healthy underlying trends in international markets," he added.
	"I am highly encouraged by the outlook for the investments we are making in both market development and product development," Burbach commented. "Our market development efforts continue to drive strong performance in our HeartMate II product line, and with respect to our product development portfolio, we remain on track to initiate pivotal clinical trials for both HeartMate III and HeartMate PHP(TM) during 2013."
	The Company also updated guidance for 2012. It expected revenues to be in the range of \$477 to \$483 million compared to previous guidance of \$460 to \$470 million. GAAP net income was expected to be in the range of \$1.40 to \$1.44 compared to previous guidance of \$1.28 to \$1.34 per share. Non-GAAP net income was expected to be in the range of \$1.79 to \$1.83 compared to previous guidance of \$1.67 to \$1.73 per share. ¹¹³

¹⁰⁸ Canaccord Genuity, "Q2 LIGHT; MAINTAIN HOLD & LOWER PT TO \$35," August 1, 2012.

¹⁰⁹ PR Newswire, "Thoratec Third Second Quarter Results," November 1, 2012, 4:02 PM.

¹¹⁰ Wedbush Securities Inc., "Solid Q3 Dodges Seasonal Weakness; Awaiting Timing of HVAD Approval; Reiterate NEUTRAL and Raising FV to \$35 from \$33," November 1, 2012.

¹¹¹ Bloomberg, "*THORATEC 3Q ADJ. EPS 49C, EST. 39C," November 1, 2012, 4:03 PM.

¹¹² PR Newswire, "Thoratec Third Second Quarter Results," November 1, 2012, 4:02 PM.

¹¹³ *Ibid*.

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	The Company held a conference call with analysts later that day. ¹¹⁴
	Canaccord Genuity said the Company had a "strong 3Q as expected" but the analyst maintained its Hold as it "expect[ed] THOR's US VAD growth to slow in 2013 and beyond": 115
	Investment recommendation As our Q3 VAD survey predicted (report 10/31), THOR's US VAD volume exceeded expectations owing to 1) strong underlying trends in the US VAD market and 2) lack of competition from HTWR (BUY), which does not have HVAD approved yet and did not have many CAP patients in Q3. THOR's strong Q3 supports our bullish thesis on the VAD market, and we believe it will lift investors' optimism about the opportunity ahead for these players. We continue to expect HTWR HVAD approval imminently, and expect a strong launch thereafter; therefore, we continue to expect THOR's US VAD growth to slow in 2013 and beyond. We maintain our HOLD rating on THOR and our positive bias to the VAD space.
	Investment highlights Sales of \$118M (+15% Y/Y) exceeded our/consensus \$111M/\$112ME. WW VAD unit growth expanded 16% Y/Y from 4% in a sluggish Q2, owing largely to strong HM2 volume (+27% Y/Y vs. +13% in Q2), which was above our estimate (+15%). US units grew 17% Y/Y, benefiting from HTWR's absence and CAP-gap. OUS unit growth (+11% vs. 7%E), but FX impact drove in-line OUS sales vs. our estimate.
	Non-GAAP EPS of \$0.49 beat our \$0.39E, owing to strong revenue, lower OpEx (timing of projects), which we estimate augmented EPS by 3 cents, and lower tax rate (non-recurring), which benefited EPS by 2 cents. THOR expects OpEx to increase markedly in Q4.
	Guidance increased. 2012 guidance is now \$477-483M/\$1.79-1.83 from \$460-470M/\$1.67-1.73. We increase our estimates to the top end of the range in 2012, and increase 2013 estimates modestly.
	HTWR derivative. Our survey work over the past several quarters consistently suggested HTWR could garner 30-35% US VAD unit share in FTM post-launch. We model 25% in 2013.

¹¹⁴ CQ FD Disclosure, "Q3 2012 Thoratec Corporation Earnings Conference Call – Final," November 1, 2012.

 $^{^{115}\} Canaccord\ Genuity,\ "STRONG\ Q3\ AS\ EXPECTED;\ POSITIVE\ FOR\ VAD\ MARKET;\ MAINTAIN\ HOLD,"\ November\ 1,\ 2012.$

Impact Date	Event
_	Barclays said the Company's results "were better than expected" as it reiterated its Overweight rating: 116
	MATT'S MINDSET: THOR's reported 3Q results were better than expected both on the top and bottom lines. Revenue of ~\$118 MM (up 15%) was above consensus of ~\$110 MM and EPS ex-items came in at \$0.49 versus consensus of \$0.39. HMII global unit growth accelerated to ~27% Y/Y in 3Q from ~12% last quarter with strong performance both US (~25% Y/Y growth versus ~8% growth in 2Q) and OUS (~36% growth from ~27% growth in 2Q). Given a strong 3Q combined with the delay in HTWR's US BTT approval, THOR raised 2012 revenue guidance by ~\$15 MM (to \$477- \$483 MM from \$460-\$470MM) attributing half of the increase to "underlying trends" and the other half to the delay in HTWR's approval (which THOR now expects before year end). 2012 EPS was also increased to \$1.79-\$1.83 (vs. \$1.67-\$1.73) which implies a step to OpEx in 4Q (with THOR calling out 1x project related payments to third parties for product development, seasonality, and market development initiatives). Net/net, we were encouraged by strong HMII growth both US (DT and BTT) and OUS as well as by evidence of strong underlying trends.
	We remain positive on the LVAD market and highlight strong DT growth and THOR's competitive positioning. We also expect THOR to retain more market share relative to street expectations post HTWR's HVAD approval. Further, we like the LVAD market's potential for growth through increased penetration into less sick patients, increased market awareness, and geographic and center expansion. Looking beyond 2012, we remain bullish on THOR's pipeline including: 1) Japan launch expected later this year; 2) PHP CE Mark study beginning in mid-2013 (we estimate 1H15 launch) and 3) HMIII CE Mark study beginning in mid 2013 (we estimate 1H15 launch) with US pivotal likely beginning by late 2013. We reiterate our OW rating and would be buyers based on our view of the LVAD market, THOR's assets, and valuation.
	Barrington Research Associates called the Company's results "mixed," but it reiterated its Outperform rating and raised its price target: 117
	Investment Highlights THOR reported Q3/12 revenue of \$117.8 million, up 15% versus \$102.6 million in Q3/11, above our estimate of \$110 million and the consensus estimate of \$111.8 million. GAAP EPS came in at \$0.41, up 32% from \$0.31 in Q3/11, and above our estimate of \$0.31 and the consensus of \$0.30.

¹¹⁶ Barclays, "Solid 3Q; Strong Underlying Trends," November 2, 2012.

¹¹⁷ Barrington Research Associates, "Mixed Q3/12 Results; DT Growth Sets Up for Interesting Dynamic in the U.S. as HTWR Enters the BTT Market; Reiterating OUTPERFORM," November 2, 2012.

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	U.S. revenue grew 16% to \$97.5 million versus \$83.9 million in Q3/11, while international revenue increased 9% to \$20.3 million versus \$18.7 million in Q3/11. HeartMate sales grew to \$105.9 million, up 21% from \$87.6 million in Q3/11, while the PVAD and IVAD pump product lines decreased 47% to \$3.8 million. The CentriMag and PediMag segments increased 4% to \$7.5 million versus \$7.2 million in Q3/11. Q3/12 benefited by \$0.9 million from the acquisition of Levitronix.
	Pump sales increased 17.7% to \$85 million versus \$72.2 million in Q3/11 and non-pump sales grew 8% to \$32.2 million versus \$29.8 million in Q3/11. THOR grew the number of pumps 15.9% to 989 pumps versus Q3/11. There were roughly 781 pumps shipped within the U.S. and 208 pumps sold internationally.
	U.S. growth was driven by HeartMate II, which grew 21% to \$105.9 million. Over 50% of U.S. HeartMate II implants in Q3/12 resulted from Destination Therapy indications, a 10% increase versus Q3/11. THOR experienced the strong performance in HeartMate II due to the market and product development efforts, in turn, driving up the whole product development portfolio. During Q3/12, THOR added two HeartMate II centers in the U.S. and five internationally bringing the number of domestic and international centers to 100 and 156, respectively. There are now 117 centers in the U.S. with DT certification, up from 103 at the end of 2011 enabling the company to meet its 2012 goals.
	Management raised its 2012 revenue guidance to be in a range of \$477-483 million versus \$460-470 million in previous quarter, primarily driven by the increasing adoption of HeartMate II in the U.S. Destination Therapy indication and the continued robust growth in the international VAD market. THOR believes that gross margin will remain at 69% (GAAP) and 71.5% (non-GAAP). GAAP EPS and Non-GAAP EPS are now expected to be \$1.40-1.44 and \$1.79-1.83, respectively, versus \$1.28-1.34 and \$1.67-1.73 in Q2/12, respectively.
	We are reiterating our OUTPERFORM rating and raising our price target from \$36 to \$40 based on the company's technology and clinical leadership in the large and growing HF market.
	Credit Suisse raised its price target for the Company and revenue and EPS estimates for 2012 after results that were above its estimate. The analyst also commented that it "believe[d] THOR [would] likely continue to create long-term value": 118
	Beat & Raise Quarter; Raising Estimates: THOR reported Q3 revenues of \$118M, +17 cc % YoY, above consensus & our estimate of \$111M and EPS of \$0.49 above consensus of \$0.39. Top-line strength was driven

¹¹⁸ Credit Suisse, "3Q12 Beat & Raise; Raising Estimates," November 1, 2012.

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	HMII pump unit growth of +25%/+36%, US/OUS, respectively (+27% WW). For FY12 THOR increased sales/EPS guidance (perhaps conservatively) to \$477- \$483M / \$1.79-\$1.83 from \$460-\$470M/\$1.67-\$1.73. We're adjusting our 2012 sales/EPS estimates to \$484M/\$1.84 from \$473M/\$1.75 due to the 3Q beat & slightly stronger expected 4Q12 market growth. For 2013 we model \$506MM in sales and \$1.86 EPS. Raising PT to \$39 from \$37.
	Strong Heartmate II (HMII) Results Indicative of LVAD Market Strength: THOR's 36% 3Q12 OUS HMII unit growth in the face of the challenges associated with European austerity speaks to the compelling unmet medical need addressed by left ventricular assist devices (LVADs) and also bodes well for HTWR's 3Q12 OUS results, in our view. In Q3 the US/OUS unit market grew 7%/~30% including PVAD/IVAD and the declines in OUS tertiary players, which account for ~10% of the OUS market. For Q4 we are modeling US / OUS LVAD market growth of 10% / 23%, which implies FY growth of 9%/30% (13%/38% ex PVAD/IVAD).
	THOR's fate tied to HTWR approval; raising price target to \$39 from \$37: We model a Q4 US approval for HTWR under the assumption that the FDA will take its time to study recent HVAD data prior to granting approval. If the approval slips into 2013, concerns around HVAD approvability will mount, directly benefitting THOR. On the other hand, it the HVAD is approved in the next few days, we expect HTWR will see a relief rally, with THOR going in the opposite direction. Longer term we model parity in market share and greater relative appreciation for HTWR. We're raising our DCF-derived price target to \$39 from \$37 on our higher estimates & a slightly lower assumed WACC. We believe THOR will likely continue to create long-term value.
	Leerink Partners raised its revenue estimates for 2012 and 2013, and said that "shares could react positively to what clearly seems to be a very strong quarter highlighting broad-basedand likely sustainableVAD market growth": 119
	Bottom Line: THOR shares could react positively to what clearly seems to be a very strong quarter highlighting broad-basedand likely sustainableVAD market growth. More importantly, highlighting what we believe is sustainably strong market growth going forward, THOR raised 2012 sales guidance to \$477M-\$483M, up \$13M-\$17M from \$460M-\$470M previouslymore than reflecting the 3Q beat relative to consensus. While the overhang of an upcoming competitive approval remains, we believe THOR shares can work their way higher as the company: (1) continues to deliver consistent quarterly results highlighting strong market growth; and (2) maintains better-than-expected market share post a HTWR (OP) U.S. launch. We remain OP-rated with a \$40 valuation.

¹¹⁹ Leerink Partners LLC, "3Q12: A Very Strong Quarter All Around Highlights Sustainable Market Growth," November 2, 2012.

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	3Q12: Broad-Based Sales Outperformance Drives a Beat. In 3Q12, THOR delivered sales solidly ahead of us and consensus\$117.8M (+15%) vs. \$105.2M and \$111.6Mdespite a generally seasonally weaker quarter. While THOR did benefit from HTWR's Bridge-to-Transplant (BTT) approval delay, we estimate that the benefit was ~\$5M or less. THOR sold 989 pumps in the quarterincluding both the HeartMate II (HM II) and PVAD/IVADwell above our 865 estimate. Destination Therapy (DT)now nearly 50% of total HM II unitsdrove most of the beat vs. our estimate, delivering unit volume growth nearing 60% vs. our 33% projection while BTT unit volumes grew just 4%. And THOR outperformed both U.S. and international, with 3Q12 U.S. unit volumes exceeding our estimate by nearly 100, while international unit volumes beat by almost 30. Based on THOR's resultswith HTWR set to report next Fri. 11/9 international market growth in the quarter seems likely to be stronger than expected and more in line with very strong 40%+ 1H12 growthpossibly in the mid-30% rangevs. our 20% projection. While international growth isn't likely to remain at this high growth level longer term, THOR reiterated its longer-term 20% growth guidance internationally. Outlook Moves Higher. For 2012, we now expect THOR to deliver sales of \$479.4M (+13%) vs. our prior \$466.2M estimate, reflecting 3Q12 outperformance and stronger DT and international market growth. Our 2013 sales outlook also moves a shade higherto \$511.7M (+7%) from \$504.6M, again due to stronger DT and international market growth despite the likely HTWR launch in BTT before year-end 2012. Oppenheimer said the Company topped its estimates for revenue and earnings. The analyst increased its revenue and EPS
	estimates for 2012 and 2013 and noted that Thoratec's "ability to hold onto a majority share in bridge-to-transplant (BTT) [were] underappreciated": 120
	THOR delivered another solid quarter in 3Q and again upped '12 guidance. Sales of \$117.8M were meaningfully above our estimates/Street (\$109.5M/\$112.3M), led by continued HeartMate II momentum both in the US and internationally. EPS of \$0.49 handily beat our/Street's \$0.38/\$0.39 on the top line/lower SG&A. While THOR did benefit from HTWR being restricted in the US 3Q, management's commentary on market trends was firm. We still believe THOR's exclusivity in destination therapy (DT) and ability to hold onto a majority share in bridge-to-transplant (BTT) are underappreciated. Near-term opportunities include Japan and the use of a strong balance sheet (M&A/buybacks) and long-term include PHP launch and HeartMate III.
	Key Points

¹²⁰ Oppenheimer & Co., Inc., "Not Getting Boring; Another Beat and Raise," November 2, 2012.

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	3Q driven by HMII. Sales grew 15% y/y, led by 21% HMII growth. Management noted the HMII strength was "universal", with US/OUS units +25%/36% and double-digit growth from US centers irrespective of size. Not surprisingly, PVAD/ IVAD revenues remained in decline. CentriMag revenues were in-line against a tough comp.
	Pipeline on-track. THOR is currently in a targeted launch of its new (smaller/ lighter) pocket controller in Europe; worldwide commercialization expected in early '13. FIM/CE Mark trials for the percutaneous heart pump (PHP) and HeartMate III remain on-track for early and mid-2013; US pathways visibility will increase 4Q. Japan HMII approval is expected by year-end.
	Guidance raised again. Sales are expected \$477-483M from \$460-470M and EPS \$1.79-1.83 from \$1.67-1.73. Management attributes about half of the sales raise to HTWR's delay from the BTT market, with the balance on the strength of the market/Europe. THOR assumes HVAD FDA approval in 4Q.
	Cash strategy. THOR ended 3Q with \$308M in cash and no debt. Strategic acquisitions in mechanical circulatory support technology (in similar vein as PHP tech/Levitronix acquisitions) are the focus, with excess cash for share buybacks.
	Estimates up. Our '12E sales increase to \$481.8M on 3Q and higher HMII expectations. EPS rises to \$1.81 also on 3Q. For '13E, our estimates rise to \$152.2M sales/\$1.89 EPS. We assume a step-up in share repurchases next year, but the strong balance sheet provides room for more.
	Piper Jaffray called the Company's results "strong" and reiterated its rating and price while increasing its 2012 and 2013 forecasts for revenues and EPS. It also noted that it disagreed with "some investors [who] question[ed] THOR's ability to grow in the face of a competitive launch during FY13": ¹²¹
	Thoratec reported strong 3Q results and raised FY2012 revenue and EPS guidance. HeartMate revenue grew by 20.9%, with unit growth of 25% within the US, and 36% internationally. Total revenue of \$117.8M was well ahead of estimates, as was EPS of \$0.49, with the majority of the operating leverage coming from SG&A. Thoratec continues to benefit from a combination of a delayed competitive U.S. launch of HTWR's HVAD
	device for the BTT indication, healthy overall worldwide market growth for LVADs and US DT therapy growth. The guidance revisions assume a 4Q launch of HTWR's HVAD, although timing remains uncertain. The degree of Heartmate's US market share decline post-HVAD approval has been well rehearsed. We are

¹²¹ Piper Jaffray, "Beat and Raise Quarter; Strong LVAD Market Continues," November 2, 2012.

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	biased toward a more modest loss of BTT market share than some on Wall Street, with continued domestic
	revenue growth for the HeartMate franchise in DT. We reiterate our Overweight rating and \$44 price target.
	Revenue Growth Likely for FY13. We have noted that some investors question THOR's ability to grow in the face of a competitive launch during FY13. We continue to believe HVAD's market penetration will be relegated to the slower growing BTT indication, with only limited off-label/clinical trial related DT implants. We also believe that the overall LVAD market will be able to absorb a second player in the US, and not be a perfectly zero sum game. We see several additional growth catalysts for THOR during FY13 including the launch in Japan. Management also referred to nonpump revenue which we believe is a nod to THOR's new pocket controller which was launched on a limited basis during August in Europe, and is expected to be launched within the U.S. in late 1Q13.
	Pipeline Coming Into Focus. In addition to the pocket controller, Thoratec continues to target mid-year 2013 for pivotal CE Mark trials of the HeartMate III (HMIII) and HeartMate Percutaneous Heart Pump (PHP) device. As a reminder, the HMIII is a fully magnetically levitated VAD with an ultra-compact design that facilitates intrathoracic placement along with several other benefits. The PHP platform is THOR's catheter-based pump for percutaneous acute cardiac support.
	MEDCAC Meeting On Tap. CMS has formally scheduled a MEDCAC meeting to review Ventricular Assist Devices on November 14. As we have written in the past, CMS panel meetings are not typically seen as a positive, but in this case we are more neutral, as we believe meaningful restrictions on VAD use are unlikely to come from the meeting. Rather, we believe that the panel will review new information from the multiple clinical trials and registry data that have been gathered over the last few years, much of which stem from trials using the HM II device.
	Risks To Achievement Of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.
	UBS Equities wrote that "delayed competition helped THOR but mkt growth is also better than expected." The analyst raised its price target and increased its revenue and EPS targets for 2012 and 2013: ¹²²
	Nice, clean quarter US/ex-US HMII vols were up 25%/36% vs. our 20%/20%. Delayed competition helped THOR, but mkt growth is also better than expected (globally, ~22% vs our 17%; YTD: 24%). The key issue

¹²² UBS Equities, "Easy Button," November 2, 2012.

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	remains how much share will HTWR take in BTT, but meanwhile, the DT market continues to grow sharply (3Q12: 43%; YTD: 35%) while there is clearly more than enough room for 2 players in the ex-US market (HM2 ex-US YTD: 33%). We think there could be significant multiple expansion (currently, 7% UFCF yld) as THOR absorbs and grows through the HVAD launch.
	Some color on 2013; THOR revs may exceed street expectations THOR expects positive rev growth in 2013 (UBS: +4% to \$500M, Street: \$495M), while growth will be subdued due to HVAD BTT rollout, investor focus will probably shift to '14 re-acceleration over the next 6 mos. Spending growth will decelerate in '13, also inline with our model (op ex +5% vs. +22% in '12). THOR will likely repo shares to amplify '13 EPS growth (not currently reflected in ests).
	3Q12 recap Total revs / EPS of \$118M (+17% cc)/ \$0.49 were above the Street at \$112M / \$0.39 and our ests of \$115M (+14% cc)/\$0.42. Relative to our est, higher sales, lower opex and tax rate all contributed to the beat. We raise our '12/13 revs/EPS ests to \$483M /\$500M (from \$478M/\$499M) & \$1.81/\$1.82 (from \$1.77/\$1.80).
	Valuation – Buy; raise DCF-based price target to \$41 (from \$39) THOR trades at 6% FCF yield (7% unlevered).
	Wedbush Securities said the Company beat estimates and management's increased guidance led the analyst to increase its price target and estimates for EPS and revenue. The analyst also noted that "the key focus for THOR investors during the coming months [would] be on the timing of HTWR's BTT approval": 123
	Q3 beats estimates on solid HeartMate II growth despite summer seasonality. THOR reported Q3 revenues of \$117.8MM compared to our estimate of \$116.9MM and consensus of \$111.7MM. We note that Q3 is historically a down quarter for THOR due to the impact of summer seasonality although the impact this year appears to be lower than in prior years. THOR reported unit sales of 989 pumps during the quarter, compared to our estimate of 978. We note that international sales do not appear to be impacted by European macroeconomic issues that have weighed on other med tech sectors.
	FY:2012 guidance raised as expected, assumes Q4 HVAD launch. Thoratec raised FY:12 revenue guidance for the third time this year, to \$477-483MM from \$460-470MM. While Thoratec has a history of making

¹²³ Wedbush Securities Inc., "Solid Q3 Dodges Seasonal Weakness; Awaiting Timing of HVAD Approval; Reiterate NEUTRAL and Raising FV to \$35 from \$33," November 1, 2012.

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	inter-quarter guidance raises, we believe 2012 necessitated additional conservatism due to uncertainty over the timing of approval for HeartWare's (HTWR - OP) competitive HVAD device. Given that the prior guidance assumed a Q3 HVAD launch (which has not yet occurred) we had expected the company to raise guidance at this time. Additionally, THOR raised its FY:12 non-GAAP EPS guidance to \$1.79-1.83 (from \$1.67-\$1.73 previously); we have adjusted our estimates accordingly.
	We continue to expect the coming months to be subject to volatility on timing and impact of competitive HVAD launch. In our view, the key focus for THOR investors during the coming months will be on the timing of HTWR's BTT approval and evolving expectations for HMII market share erosion amidst the HVAD's initial launch results. We continue to expect HVAD approval shortly.
	Reiterate NEUTRAL; raising fair value to \$35 from \$33. Our new fair value of \$35 is based on a sum-of-parts analysis, applying a 20% annual discount to our 2013 ex-US HeartMate II sales and our 2014 US HeartMate II sales (BTT and DT), applying a 1-5x multiple based on stage of clinical development to reflect risk. Our fair value has increased from \$33 due to the passage of time and the fact that we discount future revenues. We continue to expect THOR to trade range-bound until the US DT market shows signs of reaching an inflection point and/or investors gain better clarity on the scope of HVAD's competitive threat.
	Wells Fargo Securities said the Company's results were above its estimates. Despite expecting "top line growth to be limited over the next few years due to softness in the LVAD market and share loss to HTWR," the analyst increased its EPS estimate for 2012: ¹²⁴
	Summary. THOR reported Q3 2012 sales of \$117.8MM which was \$6MM above consensus and \$2.4MM above our estimate. Total revenue growth was +14.8% compared to a year ago. Worldwide HMII unit sales were up +27% yr/yr in Q3 which represents a sequential acceleration from +13% in Q2. Solid U.S. HMII growth of 25% yr/yr was driven by growth in destination therapy (DT), which approached 50% of HMII implants in Q3, and emerging DT-certified center growth. Robust outside the U.S. (OUS) HMII unit growth of 36% was driven by broad-based growth in core Western European markets and newer OUS markets. THOR continues to see approximately 20% OUS market growth as a realistic long-term expectation. THOR expects CE Mark trials for its percutaneous heart pump (PHP) and Heart Mate III (HMIII) to begin in mid-2013. THOR raised its 2012 sales guidance to \$477-\$483MM (13-14%) from \$460-470MM (9-11%) and raised its FY2012 adjusted EPS guidance to \$1.79-\$1.83 (15-17%) from \$1.67-1.73 (7-11%). THOR's guidance assumes HTWR receives U.S. approval for its HVAD pump by the end of 2012. THOR's revised guidance is

¹²⁴ Wells Fargo Securities, LLC, "THOR: Impressive Q3--Growth Broadbased Across US/OUS Markets," November 2, 2012.

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	somewhat conservative, in our view, given the HTWR approval delay and robust year-to-date revenue growth. We raise our 2012 and 2013 sales estimates by \$6.7MM and \$3.4MM, respectively, to \$485.5MM and \$506.1MM. We raise our 2012 EPS estimate by \$0.08 to \$1.84 and lower our 2013 EPS estimate by \$0.05 to \$1.71 due to increased spending assumptions.
	Solid U.S. HMII sales driven by DT growth and emerging LVAD centers. U.S. HMII pump units were up 25% yr/yr in Q3 primarily due to growth in destination therapy (DT). DT implants approached 50% of U.S. HMII sales in the quarter which is consistent with Q2. The benefit THOR received in Q3 from the delay in HTWR's DT continued access protocol (CAP) approval was modest, according to THOR. THOR indicated growth in emerging Tier 3 open-heart centers, which are primarily DT-only centers, was more robust in the quarter than in established transplant centers. There are 117 DT certified centers in the U.S. (160 total LAVD centers) as of Q3 and THOR indicated an expectation of 200-300 centers DT trained by 2015 is a reasonable estimate. Reimbursement for LVAD implantation through DRG1 increased 8% in October which we view as a positive for the profitability of the procedure and the continued expansion of the therapy.
	Valuation Range: \$34.00 to \$35.00 Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of 3.5x our 2013E sales. This is in-line with the comparable universe of companies with comparable growth prospects. Risks to our thesis include better-than-expected HMII uptake and competitors gaining less share than we model.
	Investment Thesis: We expect top line growth to be limited over the next few years due to softness in the LVAD market and share loss to HTWR.
	Wunderlich Securities wrote that the Company's "solid performance is noteworthy," but "suspect the Street will discount the beat to some degree." The analyst raised its EPS estimates for 2012 and 2013, and noted that "Heartware [is] coming, which probably overhangs THOR shares": 125
	Thoratec (THOR) reported strong Q3 results Thursday afternoon. Revenues of \$117.8mm increased 15%, above our estimate of \$111.6mm. Adjusted EPS of \$0.49 beat our estimate and consensus by \$0.10 per share. THOR benefited from Heartware's (HTWR-\$84.13, Hold) lack of FDA approval and CAP in Q3, so we suspect the Street will discount the beat to some degree. Still, these results are impressive, and following a strong Q1 but weak Q2, Q3 continues the recent volatile, uneven pattern for the LVAD market. THOR raised

¹²⁵ Wunderlich Securities, "Q3 Results Beat Expectations, Guidance Raised," November 2, 2012.

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	2012 guidance, reflecting both the company's solid performance and the delays in HTWR's FDA approval and U.S. launch. Still, with HTWR likely to enter the market soon, we reiterate our Hold rating and \$35 target.
	Key Points
	Strong Q3 performance after Q1 strength, Q2 miss. THOR revenues of \$117.8mm beat our estimate of \$111.6mm and consensus of \$111.8mm. Our estimates, and we suspect some other Street estimates, did not adjust for HTWR's delay in gaining FDA approval, so that may offset the beat to a degree. Sales grew 16% in the U.S. and 9% Internationally. THOR sold a total of 989 pumps, nicely above our estimate and Street expectations. THOR added two centers in the U.S. and five internationally.
	Results reflect another positive read LVAD market. The LVAD market remains lumpy and unpredictable, but we see THOR's results as encouraging once again as far as the overall market is concerned. The lack of FDA approval for HTWR did inflate THOR's Q3 numbers to some degree, so the Street may not give THOR full credit for the Q3 beat. Still, THOR continues to do an excellent job with market development and referral networks, driving Destination Therapy growth. We continue to expect HVAD should help boost the overall market development.
	THOR boosts guidance. THOR boosted prior guidance, suggesting revenues in the range of \$477-\$483mm versus a prior range of \$460-\$470mm. THOR increased EPS guidance after a strong Q3 performance, suggesting non-GAAP EPS of \$1.79-\$1.83, up from \$1.67-\$1.73. Both the revised revenue and EPS guidance remain above current Street consensus, which again, likely has not been adjusted fully to reflect the delay in Heartware entering the U.S. market. We raise our top and bottom line estimates
	Heartware coming, which probably overhangs THOR shares. The upcoming FDA approval of HVAD, while slow in coming, presents a well known competitive threat to THOR, and manifests itself in both the Street estimates for THOR in 2013 and our neutral rating on THOR. Still, THOR's solid performance is noteworthy, and upbeat LVAD market growth leaves us increasingly positive on the longer-term outlook. Still, the HTWR issue leaves us more opportunistic rather than aggressive when it comes to the concept of buying THOR shares.
	Valuation. We reiterate our Hold rating and \$35 price target. Our target reflects an EV/Sales multiple of 4x on our 2013 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of looming competition from HTWR, but we are increasingly confident that strong LVAD market growth can support both players. We believe long-term investors should look for pullbacks toward the \$30 level to buy the shares.

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	J.P. Morgan said the Company reported "strong 3Q results," but cautioned that "a portion of this upside (and the accompanying guidance increase) was clearly driven by the lack of competition from Heartware's HVAD." Nevertheless, the analyst raised its price target and EPS estimates as it commented that the "results also suggest that the overall health of the VAD market remains strong as Thoratec's market development initiatives continue to pay dividends": 126
	Thoratec reported strong 3Q results Thursday after the close, with total revenues of \$117.8M (+15%, +17% organic) coming in \$5.9M above Street consensus. On the bottom line, adjusted EPS of \$0.49 (+18%) were a full \$0.10 above consensus, as better spending restraint and a lower tax rate amplified the impact of the top line beat on earnings. While a portion of this upside (and the accompanying guidance increase) was clearly driven by the lack of competition from Heartware's HVAD, which is still awaiting FDA approval, these results also suggest that the overall health of the VAD market remains strong as Thoratec's market development initiatives continue to pay dividends.
	Thoratec sold 989 pumps in 3Q, up 16% YOY and above our 933 estimate. This result is encouraging after disappointing 4% volume growth in 2Q, bringing unit growth through the first nine months of the year to a solid 14%. VAD revenues of \$117.2M grew 15%, as strong HeartMate II growth offset a steep decline in the legacy PVAD/IVAD product lines and a sequential drop in the company's acute care segment. Revenue per implant fell 1% YOY \$118,471. HeartMate II sales grew 21% to \$105.9M, \$6.2M above our estimate, while PVAD/IVAD revenues of \$3.8M (-47%) came in \$200k below our thinking. Finally, Acute Support sales of \$7.5M (+4%) were \$800k shy of our estimate and down \$500k sequentially.
	DT ramp continues to build. Destination therapy implants accounted for just under 50% of US HeartMate II units in 3Q, or 378 pumps by our math. This was up an impressive 56% YOY, as Thoratec's efforts to drive increased referral activity appear to be paying off. To date, 117 US centers have now received approval to perform DT implants, up from 103 at the beginning of the year. Management expects this number to continue to increase going forward, supporting robust growth for the DT segment. While the DT ramp has been central to Thoratec's story for some time, it will take on added importance as the company prepares to absorb share losses on the BTT side of the business once Heartware's HVAD receives FDA approval later this year. In 3Q, we estimate that Thoratec's BTT volume fell 5% to 403 pumps. Through the first nine months of the year, we estimate that the company's BTT sales were roughly flat vs. the same period in 2011.

¹²⁶ J.P. Morgan, "Strong 3Q as HVAD Delay and DT Momentum Drive Upside; 2013 Outlook Still Hazy," November 2, 2012.

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	Northland Securities said that despite the Company's "strong" unit growth during the quarter, "stock performance was overshadowed with investor perceptions that the growth came due to lack of HTWR's DT cap." The analyst did not necessarily agree with that sentiment and increased its revenue and EPS estimates for 2012: ¹²⁷
	THOR's Q3-12 numbers showed strong HM-II unit growth, but stock performance was overshadowed with investor perceptions that the growth came due to lack of HTWR's DT cap. Not sure if we agree with that sentiment.
	Our thoughts: Remains to be seen if HTWR receives sintered HVAD approval. Our field checks suggest continued delays could be due to some level of discomfort at the FDA on HVAD safety profile. If approval gets delayed into 2013, investors could get jittery. Moreover, if HVAD approval is for an unsintered version, how would HTWR handle consignment-related issues?
	Acc to us: 1) HVAD ischemic stroke rates are around 8 - 9%/year. Hemorrhagic stroke rates are about 10%/year. Physicians we have talked to maintain that while ischemic strokes are not desirable, they are more manageable with an end-result of some neurological deficits. Hemorrhagic strokes on the other hand are mostly fatal. It seems to us that HTWR's high ischemic + hemorrhagic stroke rates compared to HMII are going to be explicitly highlighted by THOR in the field; 2) Unlike Europe, where we have not heard a good ground game on the part of THOR, the U.S. is a completely different arena and THOR seems to have an unrivaled ground game and post-market support that the LVAD centers critically rely on. While we are giving the benefit of doubt to HTWR taking market share, our field checks do not suggest a 50% BTT share for HVAD anytime soon.3) [sic] Finally, as far as we know, there has been no new data presented on HVAD over the last year. Not sure what to read into that
	The bet on HTWR and against THOR remains: 1) Heartware will be able to translate its European success in the U.S., and 2) Issues related to HVAD stroke and thrombosis will not matter much. Our field checks suggest an acute awareness of the issues with the HVAD, and there is general discomfort with higher levels of aspirin and coumadin needed. Bear in mind, this whole theory of aspirin and coumadin has not been validated in any rigorous fashion whatsoever. Will U.S. cardiologists overlook adverse event data for the HVAD relative to HM-II, just as the cardiac surgeons in Europe are doing? Don't know. Time will tell. We are eyeing the TRACE study wherein HM-II performance with reduced anticoagulation / antiplatelet is being studied. That could have very interesting competitive implications.

¹²⁷ Northland Securities, "Q3-12 Earnings Note," November 5, 2012.

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	According to Bloomberg, following the disclosures on November 1, 2012, the average of analysts' price targets for the Company increased to \$40.38 from \$39.54, or 2.1%, and all 19 analysts with investment ratings for the Company maintained their ratings. (<i>See</i> Exhibit 5C.) ¹²⁸
	Remark: Given that: 1) the Company's third-quarter results exceeded analysts' consensus expectations for revenue and earnings; 2) the Company issued updated guidance for revenue and earnings that was above the expectations of many analysts; and 3) the "very strong quarter highlight[ed] broad-basedand likely sustainableVAD market growth," the positive Company-specific return on November 2, 2012, which was statistically significant at the 90.5% confidence level, is consistent with that expected in an efficient market.
2/6/2013	After market close on February 5, 2013, Thoratec released its fourth-quarter/full-year 2012 financial results. For the quarter, the Company reported revenues of \$128.5 million, a GAAP loss of \$14.4 million, or \$(0.25) per share, and non-GAAP net income of \$22.6 million, or \$0.38 per share. This compared to analysts' consensus of \$119.2 million in revenue and non-GAAP EPS of \$0.37. The Company stated in its press release: 132
	"Thoratec had an impressive year in 2012, with sales growth of 16 percent driven by our HeartMate II(R) and CentriMag(R) product lines, highlighting our leadership positions in chronic and acute mechanical circulatory support," said Gary F. Burbach, President and Chief Executive Officer. "We were particularly pleased to finish the year with strong fourth quarter results, including 20 percent unit growth for HeartMate II on a worldwide basis, reflecting continued adoption in the U.S. Destination Therapy indication as well as in international markets."
	"We look forward to driving continued market growth and solidifying our leadership position in chronic and acute mechanical circulatory support during 2013," Burbach commented. "Additionally, we remain focused

¹²⁸ Figures exclude Wallachbeth Capital LLC. for which the pre-event price target and rating is unavailable from Bloomberg.

¹²⁹ Leerink Partners LLC, "3Q12: A Very Strong Quarter All Around Highlights Sustainable Market Growth," November 2, 2012. *See also* Wunderlich Securities, "Q3 Results Beat Expectations, Guidance Raised," November 2, 2012.

¹³⁰ PR Newswire, "Thoratec(R) Reports Fourth Quarter And Full Year Fiscal 2012 Financial Results," February 5, 2013, 4:02 PM.

¹³¹ *Bloomberg*, "*THORATEC 4Q ADJ. EPS 38C, EST. 37C," February 5, 2013, 4:02 PM.

¹³² PR Newswire, "Thoratec(R) Reports Fourth Quarter and Full Year Fiscal 2012 Financial Results," February 5, 2013, 4:02 PM.

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	on investing in longer-term strategic initiatives, including late-stage development activities related to HeartMate III(TM) and HeartMate PHP(TM), both of which we plan to bring into pivotal clinical trials later this year."
	The Company issued guidance for 2013. It stated that it expected revenues to be in the range of \$490–\$510 million; GAAP net income to be in the range of \$1.32–\$1.42 per share, and non-GAAP net income to be in the range of \$1.76–\$1.86 per share. 133
	The Company held a conference call with analysts later that day. 134
	Canaccord Genuity lowered the Company's target price, following guidance that implied growth rates that were "more cautious thanexpected" and "US share shift trends [that] will continue to overhang THOR common." Canaccord stated that the Company's revenue exceeded expectations "as [its] Q4 VAD survey predicted," while EPS matched consensus: 135
	As our Q4 VAD survey predicted (report 2/5), total revenue exceeded expectations. However, 2013 guidance implies THOR's US growth will decelerate markedly, as the company sees continued strong underlying market trends (+~15% Y/Y) more than offset by the HeartWare (HTWR: NASDAQ: \$90.43 BUY) HVAD launch. The mid-point of THOR's 2013 guidance implies 2% WW growth and negative US VAD growth, which is more cautious than we expected, but consistent with trends suggested by our due diligence. To wit, our surgeon survey work over the past four quarters has consistently projected HTWR's 2013 US VAD share would be at least 25% of the entire market (BTT/DT), which is higher than Street expectations (18-20%). We think US share shift trends will continue to overhang THOR common, thus we maintain a HOLD rating and lower our target to \$37.
	Investment highlights Sales of \$129M (+17% Y/Y) exceeded our/consensus \$119M. WW VAD unit growth expanded 16% Y/Y while US VAD volume increased 15%, well above our 8%E. In light of HTWR's strong Q4 post HVAD launch, we estimate the US market expanded 17% in Q4 – its strongest showing since Q1. THOR regained #1 share OUS in Q4, growing OUS VAD volume 19% as HTWR focused on the US launch.

¹³³ *Ibid*.

¹³⁴ CQ FD Disclosure, "Q4 2012 Thoratec Corporation Earnings Conference Call - Final," February 5, 2013.

¹³⁵ Canaccord Genuity, "Q4 Upside Offset By Cautious Guidance; Hold, Target To \$37," February 5, 2013.

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	Non-GAAP EPS of \$0.38 met us/consensus, albeit excluding \$6M in one-time projected related R&D payments THOR would've beat by roughly 10 cents, in our estimation.
	2013 guidance cautious but not surprising. THOR guided to revenue and EPS of \$490-510M ($+0$ -4%) and \$1.76-1.86 (-4 to $+2$ %).
	Piper Jaffray reiterated its Overweight rating and price target for the Company, stating that the Company revenues "significantly outpaced street expectations," while guidance was "appropriately conservative." The analyst lowered its 2013 revenue estimate by \$6.5 million and raised its 2013 EPS estimate by \$0.08 following the Company's first-time 2013 guidance: ¹³⁶
	The great Heartmate vs. HVAD debate will likely continue for at least another quarter or two, but we feel THOR's performance in 4Q12, including 25% international growth and market share gains, will give investors further confidence in its ability to maintain significant forward US share. Initial FY13 guidance takes into consideration both share loss and trialing to HVAD (especially in 1H13) as well as some degree of off label use, balanced by continued strong growth in DT (now ~50% of THOR's US business) and at smaller non-transplant centers. We view the guidance as appropriately conservative and believe the company has set itself up to outperform for the year. We reiterate our OW and \$44 PT.
	Q4 Performance and FY13 Guidance. Q4 revenues of \$128.5M (+17%) significantly outpaced street expectations of \$119.1M on US growth of 16% (including 19% Heartmate unit growth) and OUS growth of 25% (including 23% Heartmate unit growth). Importantly, THOR appears to have regained the market share lead in Europe in the quarter, which we view as a strong statement for future US market share. Initial FY13 guidance of \$490M-\$510M bracketed consensus, and we believe provides a conservative band for HVAD trialing and share gains on consistent market growth rates. THOR continues to see the DT market (now ~50% of US volumes) as the key market growth driver vs. expectations for flat to low single-digit growth in BTT. While there is a scenario for negative US Heartmate growth in the guidance range, we believe THOR will show growth in the US market in FY13. Guidance also includes ~\$3M in contribution from the Japan market and ~\$5-6M in contribution from the new Heartmate pocket controller, which balances an anticipated ~\$8M y/y decline in the PVAD and IVAD product lines.
	Heartmate II Center Additions Remain Robust, Market Development A Focus. In terms of new center adds, THOR exited FY12 with 323 Heartmate II centers (164 US, 159 international) and plans to add ~15 new US centers and 20-25 international centers (half in Japan) in FY13. Management also expects the number of DT-

¹³⁶ Piper Jaffray, "THOR Regains EU Market Share Lead On Strong Q4 Results," February 5, 2013.

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	certified centers in the US to increase from the current 118 to 125+ in FY13. In terms of market development, in FY12 THOR estimated that its team helped generate 45%+ of total US HeartMate II implant activity and accounted for the vast majority of the growth. Additionally, there were 100+ community cardiologists in FY12 who referred three or more patients that were implanted with an LVAD, up from ~70 in 2011. More on pages 2-3. Note: price as of close on February 5, 2013.
	Risks to Achievement of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.
	Wells Fargo Securities wrote, "THOR seems confident in its competitive position" following quarterly revenue that topped expectations, and 2013 revenue and EPS guidance "which brackets consensus." The analyst lowered its 2013 revenue estimate by \$3.3 million, while increasing 2013 EPS by \$0.01 following guidance it said was in line with its expectations: 137
	Summary. THOR reported Q4 2012 sales of \$128.5MM which was \$2.3MM above our estimate and \$9.5MM above consensus. Total revenue growth was +17.5% compared to a year ago. Q4 pump unit sales of 1,066 (+16.2% yr/yr) were about 25 pumps above our estimate. Strong sales growth was driven by (1) 20% and 23% HeartMate II unit growth in US and outside the U.S pumps, respectively; (2) 31% growth in Centrimag revenue and (3) better than expected sales in the declining PVAD/IVAD business. US HMII sales were driven largely by destination therapy (DT) and greater contribution from emerging VAD programs. We estimate THOR regained approximately 650bps of OUS share from HTWR in Q4. Revenue for the full year 2012 was \$491.7MM (+16.3%) which exceeded the high end of guidance of \$477-483MM. THOR expects global LVAD market growth of around 15% in 2013 with similar growth in the US and OUS markets. THOR provided first-time 2013 sales guidance of \$490-510MM (0-4%) which brackets consensus of \$507MM and 2013 adjusted EPS guidance of \$1.76- 1.86 (-4% to +1%) which also brackets consensus of \$1.85. THOR expects stronger revenue growth in the back half of 2013 compared to H1. We lower our 2013 sales estimates by \$3.3MM to \$498.6MM and raise our 2013 EPS estimate by \$0.01 to \$1.77. We estimate 2014 sales of \$547.4MM and EPS \$2.06.
	THOR appears comfortable with competitive position. U.S. HMII pumps were up 20% in Q4 driven largely by growth in destination therapy (DT) and emerging centers. THOR estimates DT comprised about 50% of US HMII implants in the quarter. Group 3 centers (smaller transplant centers and open heart centers) grew about 30% in Q4 and over 50% in 2012, and now make up about 20% of HMII implant volume. In 2013, THOR expects the US LVAD market growth of ~15% with modest growth in BTT (THOR does not assume

¹³⁷ Wells Fargo Securities, LLC, "THOR: Impressive Q4--Competitive Position Appears Solid," February 5, 2013.

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	the entrance of HTWR expands the market meaningfully) which suggests growth of +20% in DT. THOR is assuming some share loss to HTWR in the BTT segment in 2013, particularly in H1, due to trialing of the HVAD. Overall, THOR seems confident in its competitive position given (1) the clinical data supporting the HMII compared to HTWR; (2) the support and service THOR provides its customers, and (3) the work it is doing to develop the LVAD market.
	Valuation Range: \$41.00 to \$42.00 Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of 4.0x our 2014E sales. Risks to our thesis include better-than-expected HMII uptake and competitors gaining less share than we model.
	Investment Thesis: We expect THOR to be the benficiary [sic] of slower-than-expected uptake of HTWR's HVAD and increased risk to HTWR receiving destination therapy (DT) approval.
	Barclays reiterated its price target and Overweight rating for the Company after "4Q revenue results that beat on the top line and were in line on the bottom line." The analyst reduced its 2013 EPS estimate for the Company to \$1.83 from \$1.87: ¹³⁸
	MATT'S MINDSET: THOR's reported 4Q revenue results that beat on the top line and were in line on the bottom line. Revenue of ~\$128 MM (up 17%) came in above consensus of ~\$118 MM and EPS ex-items came in at \$0.38 in-line with consensus and above our expectation of \$0.36. HMII global unit growth of ~20% Y/Y in 4Q decelerated slightly from ~27% last quarter despite strong performance both US (~19% y/y growth) and OUS (~23% y/y growth).
	With the release THOR provided 2013 revenue guidance of \$490-\$510 MM (vs. consensus of ~\$505 MM) and EPS of \$1.76-\$1.86 (vs. consensus of \$1.85) driven by HeartMate and CentriMag sales being partially offset by continued declines in PVAD/IVAD. This guidance contemplates mid-teen growth in the WW VAD market with US growth driven by DT (nearly ~50% of US HMII sales) with more broad-based growth OUS driven by continued growth in Western Europe, expansion in Eastern Europe and the Middle East, as well as Japan (market potential for 40-50 annual implants).
	THOR anticipates HVAD trialing in 1H13, but "feels good about" where shares ultimately settle in the US BTT market; which we estimate implies 30-40% HVAD US BTT market share in 2013. While we see risk to US numbers given HTWR's BTT ramp in 2013, we remain bullish on THOR given our view of DT market

¹³⁸ Barclays, "Thoratec Corp., Solid 4Q; Reasonable '13 Guidance," February 6, 2013.

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·	growth, the potential for longer-term growth, and its pipeline. Looking to 2013, we highlight THOR's pipeline includes: 1) Japan HM II launch expected later this year; 2) PHP CE Mark study beginning in mid-2013 (we estimate 1H15 launch) and 3) HMIII CE Mark study beginning in mid 2013 (we estimate 1H15 launch) with US pivotal beginning by late 2013. We reiterate our OW rating and would be buyers based on our view of the LVAD market, THOR's assets, and valuation.
	Credit Suisse wrote that the Company had a "solid top-line beat," but issued "conservative" guidance. The analyst said it "prefer[red] to remain on the sidelines for THOR until HTWR's US share trajectory is clearer," and lowered its 2013 revenue and EPS estimates for the Company "modestly": ¹³⁹
	4Q12 Solid Top-line Beat; 2013 Guidance Appears Conservative-Updating Estimates: THOR reported 4Q sales/EPS of \$129M (18% CC)/\$0.38 vs. our \$121M (11% CC)/\$0.39 estimate and consensus of \$119M/\$0.38. Topline strength was driven HMII pump unit growth of +19%/+23%, US/OUS respectively (+20% WW) and strong growth in the Centrimag line (+31%) THOR provided 1st time 2013 guidance for sales/EPS of \$490M-\$510M (-1% to 3% cc YoY)/\$1.76-\$1.86 vs. consensus sales/EPS of \$507M/\$1.85. The sales growth implied by 2013 guidance appears conservative based on our LVAD market and market share estimates with the upper end of the range seeming more reasonable. As a result, we're adjusting our 2013 sales/EPS estimates only modestly to \$507M(2% CC)/\$1.84 from \$508M /1.89.
	2013 Top-Line Puts and Takes: 2013 is likely to be a mixed year for THOR with the benefit from the HMII launch in Japan (THOR expects to train 15 Japanese centers in February with reimbursement by the end of 1Q13) and new controller revenues being offset by HTWR's US BTT launch, the initiation of HTWRs DT CAP and a potential slowdown in Europe after very solid growth in 2012. THOR did have a strong finish to the year ex-US and we estimate took some share back from HTWR in Q4. We estimate that HTWR and THOR split the ex-US market in 2012 consistent with our assumption of a long term duopoly.(Exhibit 2) We model 14% US market growth (ex-PVAD IVAD), 15% ex Japan OUS growth (ex-PVAD IVAD), and 60% share (for THOR) of the US BTT market exiting 2013.
	Valuation: Our \$40 PT is DCF based. Given our belief that the LVAD market remains highly underpenetrated, we believe that THOR will create shareholder value over time. That said, as we believe that HTWR and THOR are likely to share the market, and given the disparity in relative market caps, we prefer to remain on the sidelines for THOR until HTWR's US share trajectory is clearer.

¹³⁹ Credit Suisse, "Thoratec Corp. (THOR), "Solid 4Q; 2013 guidance seems conservative," February 5, 2013.

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	Leerink Partners said the Company "reported a very strong end to the year," and increased its price target for Thoratec to \$43 from \$40. However, Leerink Partners lowered its 2013 sales and EPS estimates, and suspected the Company's "likely conservative" revenue guidance "could mute near-term share performance": ¹⁴⁰
	Bottom Line: Last night THOR reported a very strong end to the year despite absorbing ~4+ weeks of a competitive launch in Bridge-to- Transplant (BTT)potentially pointing to encouraging growth trends in the Destination Therapy (DT) market. But THOR also issued what we believe is likely conservative 2013 revenue guidance\$490M-\$510M, flat to +4%which could mute near-term share performance as investors digest the level of: (1) U.S. BTT market share loss; and (2) decelerating but still double-digitinternational market growth. We're inclined to think THOR is setting the bar for 2013 reasonably low, with upside potential from: (1) stronger-than-expected U.S. BTT and/or DT market growth; (2) better-than-expected U.S. BTT market share; and (3) continued international momentum more in line with recent 30%+ growth trends vs. our high-teens 2013 growth projections. We remain OP-rated; our valuation moves to \$43 from \$40 previously.
	4Q12: A Strong Sales Beat Across the Board, Boosted by HeartMate II. In 4Q12, THOR reported \$128.5M in sales+17% and ~\$10M ahead of consensus and ~\$12M ahead of us. THOR beat our estimates across all product lines, but the strong HeartMate II performance was a primary driver. THOR reported 4Q12 HeartMate II sales of \$110.8M+18% and over \$7M ahead of us. We estimate that THOR sold 981 HeartMate IIs in the quarter vs. our 906 assumption, with stronger-than-expected growth in both BTT and DT (+12% and +46%). And sales were strong across all geographies, with 812 U.S. pumps including PVAD/IVADvs. our 727 estimate and 254 total international pumps vs. us at 230. Based on HTWR's early January preannouncement, we estimate the international VAD market delivered another strong performance in the quarter+25% y/ythough decelerated a bit from 40%+ levels through the first nine months of 2012. Interestingly, it appears that THOR regained some international market share in the quarterestimate just over 50% nowbut we attribute this more to quarterly fluctuations vs. any real shift in trends.
	2013 Outlook: Moves a Shade Lower, but Likely Conservative. Our 2013 sales estimate moves ~\$6M lowerto \$504.5M (+3%) from \$511M previouslyin line with guidance of \$490M - \$510M. And our non-GAAP EPS estimate moves slightly lowerto \$1.82 from \$1.84 on lower gross margin better reflecting the impact of the medical device tax. But in our view, THOR has plenty of room to drive upside to our now-lower estimates with: (1) stronger-than-expected U.S. BTT and/or DT market growth; (2) better-than-expected U.S. BTT market share; and (3) continued international momentum more in line with recent 30%+ growth trends vs. our high-teens 2013 growth projections.

¹⁴⁰ Leerink Partners LLC, "Thoratec Corp., 4Q12: Strong Quarter, 2013 Guidance Seems Conservative," February 6, 2013.

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	Northland Securities maintained its price target and Outperform rating for the Company, commenting that as "[f]rustrating as it is to watch Thoratec's stock not move given such a strong performance, we believe that in the end the fundamentals will trump perception": 141
	Summary THOR's Q4-12 numbers showed strong HM-II unit growth, and the highlight of the quarter was the stronger than expected showing of 254 units internationally. Based on triangulation, it seems Thoratec has regained leadership status in Europe.
	Key Points HeartMate-II saw unit growth of 15% in the U.S. and 20%+ in Europe. Approximately 254 units were implanted internationally, and the Street quickly figured out that THOR regained leadership status in Europe.
	Guidance for fiscal 2013 was established at \$490 - \$510 million, ahead of the fears that had been set in with a recent survey done by another bank. This survey had indicated that Thoratec's guidance could be lower than consensus by about \$50 million, especially due to Heartware gaining 30% share in DT. Given Thoratec's history of beating guidance, we believe the fears were unnecessary. At least our ground checks did not suggest that off-label DT usage was factoring in to a significant extent in the marketplace.
	Japan expected to be a small contributor in fiscal 2013, to the tune of \$3 million. pVAD / IVAD revenues to be down about \$8 million implied in the guidance. HeartMate-II, we have factored in, losing about 50% share in BTT in the U.S. to Heartware (HTWR - Underperform).
	HeartMate - III, Thoratec's fully maglev system, should be entering trials in Europe in summer-2013, and U.S. trials by the end of 2013. The percutaneous pump, PHP is expected to also enter FIM trials in Europe in 2013. Thoratec expects PHP to undergo full-fledged clinical trials as part of the PMA process in the recent 515i reclassification.
	HeartMate-III will be interesting to watch, especially given that anecdotally we hear a number of Heartware units are put in, given the ease of surgical implantation. Thoratec, in our opinion, seems to be systematically dismantling any incremental advantages that Heartware has, whether it be perc lead, size, controller, batteries, surgical implantation, and finally the fully maglev system.

¹⁴¹ Northland Securities, "Thoratec Corporation (THOR), Strong Q4; Leadership Status Regained In Europe," February 6, 2013.

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	Overall, we remain bullish on Thoratec. Frustrating as it is to watch Thoratec's stock not move given such as strong performance, we believe that in the end the fundamentals will trump perception and Thoratec will emerge as one of the unrivaled leaders in the space. We therefore, maintain our Outperform rating and \$42 PT.
	Oppenheimer & Co wrote that the Company's revenues were "significantly above" its estimates, but the "midpoint of '13 guidance is slightly below consensus." The analyst left 2013/2014 revenue estimates for the Company "basically unchanged," and lowered its 2013/2014 EPS estimates citing "[h]igher R&D/share count": 142
	Summary 4Q12 sales of \$128.5M came in significantly above our \$118.6M/Street's \$118.9M. CentriMag strength led the beat, with a solid assist from HeartMate II (beat by ~ \$3M). The midpoint of '13 guidance is slightly below consensus. We're not surprised to see THOR start the year in a conservative posture. We are encouraged by THOR's momentum exiting '12 and expect it to remain on the offense, counter-detailing HTWR with clinical data/market development initiatives in '13. While N-T y/y growth is likely muted as HTWR continues its early rollout, we remain focused on solid market growth, new opportunities near-term (Japan, potential PHP in Europe in '14) and long-term (PHP in U.S., HeartMate III). Greater use of strong balance sheet remains upside.
	Key Points Solid 4Q. Sales grew 17% y/y, led by HMII and CentriMag. HMII unit growth was above our expectation both US/OUS (+19%/+23% respectively); management noted continued DT momentum. Also, THOR gained share internationally. PVAD/ IVAD, though beating our expectations, remained in decline.
	Pipeline on track. Japan HMII launch is expected late 1Q and worldwide launch of the new (smaller/lighter) pocket controller will occur in 1H. CE Mark trials for the percutaneous heart pump (PHP) and HeartMate III remain on track for mid-2013. THOR is in late conversations with FDA on PMA pathways for both PHP/HMIII.
	'13 guidance. THOR looks for \$490-510M in sales and \$1.76-1.84 adj. EPS (consensus going in is \$505M/\$1.84). THOR has historically been conservative with initial guidance. Management anticipates a

¹⁴² Oppenheimer & Co., Inc., "Thoratec Corp., Solid 4Q Across the Board; Sets '13 Slightly Below," February 6, 2013.

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_	stronger 2H, aided by Japan/ pocket controller impact. 1Q will be weighed by tough comps and HVAD's launch.
	Assumptions. Management forecasts mid-teens market growth in the U.S. and internationally, in line with our thinking. THOR hasn't seen a noticeable shift in DT vs. BTT characterization in the field since HVAD launch and doesn't assume significant off-label use. We assume some off-label use in our model for HVAD (20-25% share exiting '13).
	Adjusting ests. Our '13E/'14E sales are basically unchanged. Higher R&D/share count move our EPS est. lower in both years. We continue to assume a solid HVAD initial launch, with THOR's relative advantage (market development/implanting center support) increasing in the next launch stages as the year progresses.
	Wedbush Securities left its price target and rating unchanged, saying that, although revenues topped expectations, "investors remain focused overwhelmingly on US HM II sales, which was the one segment where Thoratec did not exceed our estimates and may have fallen short of some investors' expectations": ¹⁴³
	Strong topline beat overall, but not driven by US HeartMate II sales. Thoratec reported Q4 revenues of \$128.5MM, well above our estimate of \$118.6MM and consensus of \$119.1MM. The beat to our estimates was driven by PVAD/IVAD (+\$2MM), CentriMag (+\$3MM) and Ex-US HM II sales (+\$4MM). Our calculated HM II domestic unit sales of 728 (-1% q/q) was inline with our estimate of 725 units. Ex-US growth was boosted by newer markets (Eastern Europe and middle-east) and we view the overall performance in Europe as impressive, particularly given HTWR's flat growth q/q. That said, investors remain focused overwhelmingly on US HM II sales, which was the one segment where Thoratec did not exceed our estimates and may have fallen short of some investors' expectations.
	FY:2013 guidance seems realistic. Thoratec set 2013 revenue guidance of \$490-510MM, vs. our prior estimate of \$493MM and consensus of \$507MM. While Thoratec has a history of providing conservative guidance at the beginning of the year, we view the 2013 guidance as realistic given the range of implied growth rates and uncertainty over BTT market share breakdown. Additionally, THOR provided FY:13 non-GAAP EPS guidance of \$1.76-1.86. Our new estimates fall near the midpoint of guidance at \$500.3MM and \$1.81.

¹⁴³ Wedbush Securities Inc., "Thoratec Corp. (THOR), Q4:12 Recap; Reiterate NEUTRAL," February 5, 2013.

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	Awaiting Q1/Q2:13 results to gauge US DT growth trajectory and competition in BTT. The overall Q4 results and guidance should ease any immediate concerns, but the medium-term outlook on THOR is tied to the US HM II market, which remains more nebulous at the moment. We expect additional clarity over the coming quarters as the HVAD launch progresses in BTT and THOR expands its efforts in DT. We note that our 2013 estimates assume annual US DT growth of 33%, compared to 40% for 2012.
	Reiterate NEUTRAL and \$36 fair value. Our fair value of \$36 is based on a sum-of- parts analysis, applying a 20% annual discount to our 2014 HeartMate II sales estimates (2017 for Japan) and 2013 estimates for Thoratec's mature product lines, applying a 1-5x multiple based on stage commercial development to reflect risk and growth potential. We reiterate our NEUTRAL rating as we expect shares to trade range-bound until the US DT market shows signs of reaching an inflection point and/or investors gain better clarity on the scale of the competitive threat posed by HeartWare's HVAD.
	Wunderlich Securities raised its price target to \$38 from \$35 after the Company "reported very strong Q4 revenues," but noted that 2013 guidance was "slightly below Street consensus," and "suspect[ed] [the HTWR launch] will limit the reaction in THOR shares to Q4 results": 144
	Summary Thoratec (THOR) reported very strong Q4 revenues Tuesday. Revenues of \$128.5mm increased 17%, far above our \$116.5mm estimate, while adjusted EPS of \$0.38 actually missed our estimate by \$0.01. The revenue results are especially impressive, given Heartware's (HTWR-\$90.43, Hold) recent FDA approval and initial center stocking. Given the strong Q4 pre-announcement from HTWR, we view THOR's results even more favorably. THOR also offered solid 2013 guidance which reflects HTWR competition in the U.S., coming in modestly above our prior estimate, though slightly below Street consensus. We are boosting our price target to \$38, though believe the HTWR launch could limit the near-term upside in THOR shares despite the strong Q4 revenue performance.
	Key Points Strong performance despite HTWR approval. THOR revenues of \$128.5mm beat our estimate of \$116.5mm and consensus of \$119.1mm handily. The performance was particularly impressive in light of HTWR's recent FDA approval and related stocking orders. THOR sold a total of 1,066 pumps, nicely above our estimate of 975 and Street expectations, and Heartmate II unit volumes increased a strong 20% in Q4 (19% US and 23% international).

¹⁴⁴ Wunderlich Securities, "Another Big Top Line Beat for THOR – Will It Get Rewarded?" February 6, 2013.

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	Results reflect another positive read for the LVAD market. The LVAD market remains lumpy and unpredictable, but THOR's results are another very encouraging data point as far as the overall market is concerned. While quarterly market growth remains volatile, overall LVAD market growth proved quite robust in 2012. THOR continues to do an excellent job with market development and referral networks, driving Destination Therapy growth, and we continue to expect that HVAD should help boost the overall market development going forward.
	2013 guidance reflects HTWR competition. THOR guidance for 2013 calls for revenues of \$490-\$510mm, reflecting HTWR's market entry in the U.S. Guidance (midpoint) compares favorably with our prior estimate of \$490mm, but falls a bit shy of consensus of \$507mm. Existing Street revenue estimates for 2013 fall in a wide range, at least until the new "duopoly" in the U.S. has a couple of quarters of experience to look at. EPS guidance for 2013 suggests non-GAAP EPS of \$1.76-\$1.86, right in line with our prior \$1.81 estimate (now \$1.83).
	Despite another big beat, Heartware launch continues to overhang THOR shares. The ongoing launch of HVAD presents a well known competitive threat to THOR, and manifests itself in THOR's 2013 guidance and our neutral rating. THOR's very strong revenue performance is noteworthy and the upbeat LVAD market growth leaves us increasingly positive on the longer-term outlook. Still, the HTWR issue leaves us more opportunistic rather than aggressive in the short term, and we suspect this issue will limit the reaction in THOR shares to Q4 results.
	Valuation. We are increasing our price target to \$38 per share. Our target reflects an EV/Sales multiple of 4x on our 2013 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of domestic competition from HTWR, but we are increasingly confident that strong LVAD market growth can support both players. We continue to believe that long-term investors should look for opportunistic entry points with THOR, given the long-term attractiveness of the LVAD market opportunity.
	J.P. Morgan said the Company reported "strong 4Q results," but the analyst "expect[ed] investors to largely look through 4Q as they try to gauge the impact Heartware's recent US launch will have on Thoratec's growth profile in 2013 and beyond": 145
	Thoratec reported strong 4Q results Tuesday after the close, with total revenues of \$128.5M (+17%, +18% cc) coming in \$9.5M above Street consensus and \$6.5M better than our estimate. On the bottom line, adjusted

¹⁴⁵ J.P. Morgan, "Thoratec Corp., 2012 Ends on a High Note; Now the Real Test Begins," February 6, 2013.

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	EPS of \$0.38 (+1%) were in-line with consensus, as higher spending and an increased tax rate following the late extension of the R&D tax credit offset the top line upside. While we view these results as encouraging, we expect investors to largely look through 4Q as they try to gauge the impact Heartware's recent US launch will have on Thoratec's growth profile in 2013 and beyond. Below we walk through our thoughts on the quarter and the company's 2013 outlook.
	Thoratec sold 1,066 pumps in 4Q, up 16% YOY and above our 1,030 estimate. This result brings the company's full year unit growth to a solid 15%, well balanced between the US (+14%) and international markets (+15%). VAD revenues of \$127.9M grew 18%, as strong HeartMate II and Centrimag growth offset a decline in the legacy PVAD/IVAD product lines. Revenue per implant rose 1% YOY \$119,942. HeartMate II sales grew 18% to \$110.8M, in-line with our estimate, while PVAD/IVAD revenues of \$5.6M (-8%) came in \$2.9M above our thinking and showed some signs of stabilization after being down nearly 40% during the first nine months of the year. Finally, Acute Support sales of \$11.5M (+31%) were \$3.5M better than our estimate and up more than 50% sequentially, as that segment also saw improved traction in the quarter.
	DT ramp continues to build. Destination therapy implants accounted for roughly 50% of US HeartMate II units in 4Q, or 376 pumps by our math. This was up an impressive 46% YOY, as Thoratec's efforts to drive increased referral activity appear to be paying off. To date, 118 US centers have now received approval to perform DT implants, up from 103 at the beginning of 2012. Management expects this number to reach 125 by YE13, supporting robust growth for the DT segment. While the DT ramp has been central to Thoratec's story for some time, it will take on added importance as the company begins to absorb share losses on the BTT side of the business as Heartware's HVAD ramps up its presence throughout the year. In 4Q, we estimate that Thoratec's BTT volume fell 2% to 436 pumps. For the full year, this implies a 1% decline in BTT implants, with robust 42% DT growth lifting overall US unit volume up 14% over 2011.
	Barrington Research Associates reiterated its price target and Outperform rating for the Company after "strong Q4/12 results," but noted the midpoint of both revenue and EPS guidance for 2013 was "slightly below where consensus was": ¹⁴⁶
	Investment Highlights THOR reported strong Q4/12 results with revenue up 17% to \$128.5 million versus \$109.4 million in Q4/11. THOR grew its U.S. unit sales 15% to 812 pumps versus 704 in Q4/11 while international unit sales increased 19% to 254 versus 213 in Q4/11. In terms of geography, U.Sbased sales were \$102 million versus \$88.2

¹⁴⁶ Barrington Research Associates, "Thoratec Corp. (THOR-NASDAQ), Strong Q4/12; Solid FY/13 Guidance; Product Development Encouraging," February 7, 2013.

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	million in the prior year, an increase of 15.6%, while international revenues were \$26.5 million versus \$21.2
	million in Q4/11, representing an increase of 25%.
	HeartMate II increased 18% to \$110.8 million versus \$93.8 million, higher than the consensus of \$102.4 million and grew 30% outside the U.S. At the end of 2012, THOR had a total of 323 HeartMate II centers worldwide with 164 in the U.S. and 159 internationally. The company expects to add 15 new centers in the U.S. and 20-25 centers internationally. The number of DT certified centers is expected to grow to 125 versus 118 centers at the end of FY/12. CentriMag increased 31% to \$11.5 million versus \$8.8 million in Q4/11, which was higher than the consensus of \$8.0 million. The PVAD and IVAD product lines decreased 8% to \$5.6 million versus \$6.1 million in Q4/11, which is higher than the consensus of \$3.2 million. In total, Pump sales increased 20% to \$93 million versus \$77.4 million in Q4/11. Non-pump sales increased 11.5% to \$34.9 million versus \$31.3 million in Q4/11.
	The company reported a GAAP net loss of (\$14.4) million, or (\$0.25) per diluted share versus GAAP net income of \$15.3 million, or \$0.25 per diluted share in the same period a year ago. Net income on a non-GAAP basis was \$22.6 million, or \$0.39 per diluted share versus \$22.7 million, or \$0.38 per diluted share in Q4/11 and in line with our estimate and the consensus of \$0.38.
	Management expects its FY/13 revenue guidance to be in a range of \$490-510 million, primarily driven by the growth of HeartMate II internationally and CentriMag products, and partially offset by a decline in the PVAD and IVAD product lines. THOR expects gross margin will remain at 68.5% (GAAP) and 70.5% (non-GAAP). GAAP EPS and Non-GAAP EPS are expected to be \$1.32-1.42 and \$1.76-1.86, respectively. The range of both revenue and EPS guidance encompassed the consensus expectations but the midpoints are slightly below where consensus was. That being said, both are better than our estimates and we have raised our estimates to the midpoint of revenue guidance and towards the upper end of the adjusted EPS range.
	We are reiterating our OUTPERFORM rating and price target of \$40 based on the company's technology and clinical leadership in the large and growing HF market.
	According to Bloomberg, following the disclosures on February 5, 2013, the average of analysts' price targets for the Company decreased to \$40.29 from \$40.64, or -0.9%, and out of 18 analysts with investment ratings for the Company, one upgraded and one downgraded their ratings. (<i>See</i> Exhibit 5C.)

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	Remark: The Company's fourth quarter financial results were mixed. While reported revenue exceeded expectations, EPS was in line and 2013 guidance was below the midpoint of consensus estimates and considered "more cautious than expected," thereby causing many analysts to decrease their 2013 estimates in response. In addition, there was continued uncertainty with respect to competing product Heartware's "US share trajectory," as investors focused overwhelmingly on the Company's HeartMate II sales in the U.S., which "may have fallen short of some investors' expectations." Thus, the statistically insignificant Company-specific return on February 6, 2013 is consistent with that expected in an efficient market.
5/3/2013	After market close on May 2, 2013, Thoratec released its first quarter 2013 financial results. For the quarter, the Company reported revenues of \$117.7 million, GAAP income of \$18.2 million, or \$0.31 per share, and non-GAAP net income of \$24.0 million, or \$0.41 per share. This compared to analysts' consensus of \$122.9 million in revenue and non-GAAP EPS of \$0.46. The Company stated in its press release: 152 "Although we faced some expected challenges in the first quarter, our team is responding well to our near-term priorities while also staying focused on key longer-term growth drivers, giving us confidence in Thoratec's outlook for 2013 and beyond," said Gary Burbach, President and Chief Executive Officer. "We continue to achieve important milestones in terms of product and market development for our established
	commercial platforms," Burbach commented. "Additionally, we are focused on our longer-term initiatives and remain on track to begin pivotal clinical trials later this year for both HeartMate III(TM) and HeartMate PHP(TM)."

¹⁴⁷ Canaccord Genuity, "Q4 Upside Offset By Cautious Guidance; Hold, Target To \$37," February 5, 2013.

¹⁴⁸ Credit Suisse, "Thoratec Corp. (THOR), "Solid 4Q; 2013 guidance seems conservative," February 5, 2013.

¹⁴⁹ Wedbush Securities Inc., "Thoratec Corp. (THOR), Q4:12 Recap; Reiterate NEUTRAL," February 5, 2013.

¹⁵⁰ PR Newswire, "Thoratec(R) Reports First Quarter 2013 Results," May 2, 2013, 4:02 PM.

¹⁵¹ Bloomberg, "Thoratec 1Q Adj. EPS, Rev. Miss; Down 4.2% Post-Mkt," May 2, 2013 4:09 PM.

¹⁵² PR Newswire, "Thoratec(R) Reports First Quarter 2013 Results," May 2, 2013, 4:02 PM.

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	The Company reaffirmed its guidance for 2013. ¹⁵³ It held a conference call with analysts later that day. ¹⁵⁴
	Credit Suisse lowered its price target for the Company to \$37 from \$40, stating that it expected Thoratec to "remain range bound" in the short term "unless HTWR's hemorrhagic stroke issue proves to be intractable": 155
	Summary: THOR reported Q4 revs/EPS of \$117.7M (-7%CC)/\$0.41, which missed consensus of \$123M/\$0.46. The top line miss was driven predominantly by a shortfall in US HeartMate II sales due to the ongoing HTWR while launch slightly higher than modeled Op-ex also contributed to the EPS miss. However THOR reaffirmed its guidance for the year both on the top line (\$490-510MM) and bottom line (\$1.76-1.86) indicating an expectation of accelerating sales in 2H 13 driven by higher than previously guided HMII Japan sales (\$3-6MM from prior \$3M) and controller upgrades (\$2-3M per quarter). We are modeling sales/EPS of \$501M/\$1.79 vs. prior estimates of \$503/\$1.81. Lowering PT to \$37 on slightly higher WACC due to uncertainty regarding US share losses.
	Management commentary suggests HTWR may be making modest DT gains: Management commentary around the HMII BTT/DT mix and overall market growth rates suggests that HTWR had some success in garnering DT implants in the quarter. As Exhibit 2 shows if we assume a flat US BTT market coupled with a 55% DT mix for HMII, it implies that HTWR has roughly 11% DT share in the US DT market and 32% in the BTT segment in 1Q. Off-label HVAD DT usage could increase somewhat if BTT post-approval data shows improvement in hemorrhagic stroke with tighter blood pressure control, especially if HVAD's thoracotomy approach is proven to lessen surgical morbidity and LOS without compromise of longer-term outcomes. Ex-US, we believe that 244 HVAD units and 205 HMII units were implanted, although quarterly shares show considerable volatility.
	Valuation: We are lowering our PT to \$37 from \$40 on a slightly higher WACC given the strength of HVAD's launch. In the short run it is likely that THOR will remain range-bound unless HTWR's hemorrhagic stroke issue proves to be intractable.

¹⁵³ *Ibid*.

¹⁵⁴ CQ FD Disclosure, "Q1 2013 Thoratec Corporation Earnings Conference Call - Final," May 2, 2013.

¹⁵⁵ Credit Suisse, "Thoratec Corp. (THOR), Slight top-line miss; guidance reaffirmed," May 2, 2013.

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	Piper Jaffray maintained its Overweight rating and price target for the Company, despite the fact that competitor HTWR's "launch proved to be too much for our and the Street's expectations as THOR's Q1 revenues came in light": ¹⁵⁶
	The larger than anticipated first full quarter of the US HAVD launch proved to be too much for our and the Street's expectations as THOR's Q1 revenues came in light at \$117.7M (-7%) vs consensus \$122.7M (PJC \$122.1M). However FY13 guidance of \$490M-\$510M was maintained as THOR has increased confidence in revenue catalysts moving forward (US Pocket Controller and Japan launches), continued belief in outsized US DT market growth, and sees HVAD gains as coming from a more concentrated group of US centers than originally expected. On the clinical side, THOR expects to begin HeartMate III EU and US clinical studies by year-end along with an EU study for its PHP device in high-risk PCI. We reiterate our OW rating and \$44 PT.
	Q1 Detail. HMII revenues declined 8% y/y (US unit volume was negative 12-13%, with positive mid-single digit growth OUS), and PVAD revenues declined 34% offset by 20% growth in CentriMag products. THOR commented that the US decline came primarily in larger Group 1 and Group 2 transplant centers in the broader "Bridge" indications, somewhat balanced by upper teens growth in open heart centers (which along with smaller transplant programs now represent ~23% of overall HMII units). Management also noted that the volume of HVAD implants came in a more concentrated number of US accounts, which is a primary driver of continued confidence in its FY13 guidance. We note that several accounts also appear to have diverted volume to HVAD training (including former IDE sites) and had indicated they would return to normal usage patterns when those cases had been completed.
	Upcoming Catalysts: The US launch of THOR's new pocket controller now appears on-track for Q2 which will add \$2-3M per quarter. Field checks with VAD coordinators and nurses point to significant demand for this component.
	Japan launch has now begun with the April 1st receipt of reimbursement (THOR noted ASPs to its distributor were just below US). 15 centers have been trained and initial commercial implants have begun. THOR now expects Japanese sales to total \$3M-\$6M for the year, up from its prior \$3M estimate.
	Note: price reflects close on 5/2/13.
	Risks To Achievement Of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.

¹⁵⁶ Piper Jaffray, "Thoratec Corp. (THOR), Competitive Launch Lightens Q1; FY Guidance Maintained, Thesis Intact," May 2, 2013.

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	Wunderlich Securities wrote that "[t]he LVAD market remains lumpy and unpredictable, with THOR's results clearly impacted by the strong, early start for HVAD in the U.S. market." The analyst maintained its price target for the Company, stating that "[w]e shrug off the miss, but HTWR launch continues to overhang THOR shares": ¹⁵⁷
	Summary Thoratec (THOR) reported Q1 results Thursday. Revenues of \$117.7mm dropped 7% (versus a very tough yr/yr comp), missing our \$120.2mm estimate, and consensus of \$122.9mm. Adjusted EPS of \$0.41 missed our estimate by \$0.05/ shr. The revenue results are a bit disappointing but not particularly surprising, given Heartware's (HTWR-\$98.12, Hold) very strong Q1 results reported on Monday. Market dynamics remain fluid, however, and we don't attach undue significance to the modest miss at this point. THOR reiterated 2013 guidance, which should bolster confidence on the Street somewhat. We are leaving our \$38 price target unchanged, though we continue to believe the HTWR launch remains an overhang for THOR shares at this point.
	Key Points Disappointing Q1 trends reflect HTWR's strong launch. THOR revenues of \$117.7mm missed our estimate of \$120.2mm and consensus of \$122.9mm. The performance was not particularly surprising, given the very impressive Q1 revenues reported by HTWR on Monday, reflecting a very strong initial U.S. launch for HVAD. THOR sold a total of 935 pumps (down from 1,066 in Q4), below our estimate of 983. Heartmate II unit volumes decreased 15% in the U.S. and were flat on a year/year basis.
	Results confirm the fluid nature of the LVAD market. The LVAD market remains lumpy and unpredictable, with THOR's results clearly impacted by the strong, early start for HVAD in the U.S. market. While quarterly market shares should remain volatile, overall LVAD market growth proved quite robust in 2013. THOR continues to do an excellent job with market development and referral networks, driving Destination Therapy growth, and we continue to expect that HVAD should help boost the overall market development going forward.
	THOR reiterates 2013 guidance. Despite the disappointing start to the year, THOR reiterated guidance for 2013. Guidance calls for revenues of \$490- \$510mm, with our estimate remaining at the low end of the guidance range. Street consensus of \$504mm prior to the Q1 report will likely fall toward the lower end of the

¹⁵⁷ Wunderlich Securities, "Q1 Miss Not a Major Surprise in Light of Strong Launch for Heartware (HTWR)," May 3, 2013.

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	range as well. EPS guidance for 2013 continues to suggest non- GAAP EPS of \$1.76-\$1.86, which looks more challenging after the Q1 miss. Our estimate drops slightly to \$1.80 from \$1.83 previously.
	We shrug off the miss, but HTWR launch continues to overhang THOR shares. The launch of HVAD presents a well-known competitive threat to THOR, and Street concerns have been elevated after this week's results from both players. We believe it will take another couple of quarters for market dynamics to clarify, while overall upbeat LVAD market growth keeps us positive on the longer-term outlook. We remain "opportunistic" with respect to THOR, and would look to get more aggressive with our rating on a meaningful pullback.
	Valuation. We reiterate our price target of \$38 per share. Our target reflects an EV/Sales multiple of 4x on our 2013 revenue estimate. We are hesitant to apply a higher multiple to THOR in light of domestic competition from HTWR, but we are increasingly confident that strong LVAD market growth can support both players. We continue to believe that long-term investors should look for opportunistic entry points with THOR, given the long-term attractiveness of the LVAD market opportunity.
	Barclays reiterated its Overweight rating for the Company, but expected "THOR to be under pressure tomorrow [May 3, 2013]" following the quarterly miss: 158
	MATT'S MINDSET: THOR reported 1Q13 revenue of ~\$117.7 MM (down ~7%) vs. cons. \$123 MM and EPS of \$0.41, below the Street's \$0.46. Despite this, THOR reiterated guidance, noting 1Q was more or less in-line with the guidance it gave at the beginning of the year. HMII units declined 9% in the 1Q13 including a ~12-13% decline in the US, driven by HTWR's HVAD launch in Group 1-2 centers and units grew MSD OUS. Notably the 1Q is the toughest comp of the year for THOR and the market.
	MARKET GROWTH - Despite the miss, THOR commented that January was a particularly weak month, given a strong Q4 and trends were "much stronger" in February and March. We believe the drop in quarterly utilization is an anomaly, noting that pumps/center/qtr declined for the market in both the US and OUS. In our view, utilization on a per-center basis will likely rebound; we continue to believe that the market is underpenetrated and improving data and technology will lead to higher utilization going forward.
	MARKET SHARE – We think doctors at new centers likely have a bias to implant HVAD to gain experience, leading to trialing in the early months. By our calculation, HTWR captured ~14% of the US market in the 4Q12 and 25% in the 1Q13 (including stocking), but we note that HTWR was only implanting for ~5 weeks in

¹⁵⁸ Barclays, "Thoratec Corp., 1Q Light; Still Like the Space," May 3, 2013.

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	the 4Q, suggesting higher rates of implant at the initial HVAD centers and more modest increases in share gains going forward for HTWR.
	VALUATION/WHAT TO DO WITH THE STOCK: We expect THOR to be under pressure tomorrow and given the run in HTWR shares, we note that the EV's of HTWR and THOR are approaching parity. Based on our view of the LVAD market's long term potential and THOR's market share stabilizing, we would be buyers on weakness. We believe that the LVAD market has significant potential for growth through increased penetration into less sick patients, expanding market awareness, and geographic and center expansion. We remain positive on shares of HTWR and THOR and reiterate our OW ratings.
	Barrington Research attributed the Company's weak revenue and earnings for the quarter to competition from HeartWare "as a result of it receiving BTT approval in the U.S. last quarter," and said it was a "challenging year-over-year comparison for Q1/12." The analyst reiterated its price target and Outperform rating, citing "the company's technology and clinical leadership in the large and growing HF market": 159
	Investment Highlights THOR reported weaker-than-expected Q1/13 results with revenue decreasing 7% to \$117.7 million versus \$126.8 million in Q1/12, below our estimate of \$125 million and the consensus of \$122 million. The decrease was due to increased competition from HTWR as a result of it receiving BTT approval in the U.S. last quarter. In addition, Q1/12 was the strongest quarter of the full-year and made for a difficult comparison. The revenue decrease was largely driven by decreases in pump units as ASPs and non-pump revenue were both up in the quarter. U.S. unit sales declined 15% to 716 pumps versus 838 in Q1/12, while international unit sales were flat at 254. U.S. revenue decreased 11% to \$92.3 million versus \$103.9 million in Q1/12, while international revenues were \$25.4 million versus \$22.9 million in Q1/12, representing an increase of 11%.
	HeartMate II decreased 8% to \$102.9 million versus \$111.7 million in Q1/12, which was lower than the consensus of \$108 million. The decline in HeartMate II units was affected by the challenging year-over-year comparison for Q1/12. At the end of March 2013, THOR had a total of 331 HeartMate II centers worldwide with 167 in the U.S. and 164 internationally. One hundred twenty-two of the 167 U.S. centers have received DT certification. Finally, the company added three new centers in the U.S. and five centers internationally.

Barrington Research, "Thoratec Corp. (THOR-NASDAQ, Weaker-Than-Expected Q1/13 Results; Share Losses to Moderate in 2H/13," May 3, 2013.

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	Q1/13 GAAP net income was \$18.2 million, or \$0.31 per diluted share versus GAAP net income of \$25.5 million, or \$0.43 per diluted share in Q1/12. Non-GAAP net income was \$24 million, or \$0.41 per diluted share versus \$30.6 million, or \$0.52 per diluted share in Q1/12. Adjusted EPS was better than the consensus of \$0.38.
	With respect to HeartMate III, THOR is finishing up its qualification testing phase. In the U.S., THOR plans to meet with the FDA this month to settle the protocol for the pivotal trial and we expect the trial to start around the end of 2013. An EU study should start a quarter or two sooner.
	Management reaffirmed its FY/13 revenue guidance of \$490-510 million, GAAP EPS guidance of \$1.32-1.42 and Non-GAAP EPS of \$1.76-1.86. We are reiterating our OUTPERFORM investment rating and price target of \$40 based on the company's technology and clinical leadership in the large and growing HF market.
	Canaccord Genuity reiterated its Hold rating and lowered its price target for the Company to \$36 from \$39, stating that increasing pressure from HTWR could lead to "low single digit revenue CAGR in the US for THOR over the next few years, unless somehow the competitive trend line changes, which we don't see as probable": ¹⁶⁰
	After BUY-rated HeartWare International's (HTWR: NASDAQ: \$98.12) huge beat on Monday, one could see Q1 coming from THOR. HTWR achieved 20% share of the US VAD market in Q1 ex-stocking, and THOR's results indicate HTWR also regained #1 share OUS after ceding it briefly in Q4. Going forward, based on our research, we expect THOR to cede at least 2% more share in 2013, and continue to model HTWR gaining half the US market by 2016. Our competitors will try to focus your attention on "BTT" and "DT" market dynamics, but we recommend investors look at the market through the lens of the physician – as a near-homogenous patient population shaped like a bell curve, with "DT" and "BTT" patient groups making up the tails. Within this context, we foresee low single digit revenue CAGR in the US for THOR over the next few years, unless somehow the competitive trend line changes, which we don't see as probable. Reiterate HOLD and lower target to \$36 from \$39.
	Investment highlights Total revenue of \$118M missed our estimate/consensus of \$124M. US VAD unit volume was down 15%; WW down 12%. EPS (pro forma) of \$0.41 missed our \$0.46E.

¹⁶⁰ Canaccord Genuity, "Q1 Light; Ceded Share Globally; Maintain Hold, Price Target To \$36," May 3, 2013.

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	Leerink Partners maintained it price target, but lowered its 2013 revenue outlook, noting that while "THOR reported 1Q13 results that were below expectations," the Company's reiterated guidance "implies confidence in the prospects for an improving outlook for the remainder of 2013." However, the analyst predicted that "THOR shares could be pressured near term as HTWR continues to roll out its HVAD": 161
	Bottom Line: Last night, THOR reported 1Q13 results that were below expectations not terribly surprising given HTWR's stronger-than-expected U.S. Bridge-to-Transplant (BTT) launch. But encouragingly, THOR management reiterated 2013 sales guidance of \$490M-\$510M (flat to +4% y/y), which implies confidence in the prospects for an improving outlook for the remainder of 2013 driven by: 1) continued robust Destination Therapy (DT) U.S. market growth, of which THOR will continue to be the primary beneficiary; 2) still-strong double-digit international growth, helped by the recent Japan launch, which could add ~\$3M-\$6M in sales (vs. prior expectations for just ~\$3M/year). While THOR shares could be pressured near term as HTWR continues to roll out its HVAD, we remain OP-rated on both stocks as we do not view the LVAD market as a zero-sum game. We continue to view the LVAD market as one of the more exciting new MedTech markets with potential to ultimately exceed \$2.5B in size even with the risk of a narrowly defined addressable patient population. Our valuation on THOR remains \$43.
	1Q13 Sales Miss Consensus, But Tracking In-Line With Company Expectations. THOR reported sales of \$117.7M (-7%) ~\$7M below us & ~\$5M below consensus, driven primarily by lower U.S. BTT sales due to HTWR's faster HVAD ramp. But management noted that despite missing estimates, 1Q13 tracked right in line with internal targets. And notably, 1Q13 represents the toughest y/y comp for HeartMate II.
	U.S. BTT Market Share Still Favors THOR, But HTWR Ramping Quickly. In 1Q13, we estimate a U.S. BTT market share split of 51% THOR/48% HTWR, including ~45 units of HVAD stocking. Ex. the stocking effect, U.S. BTT market share was closer to 56% THOR/43% HTWR. HTWR is clearly ramping quickly, but THOR noted that only a concentrated few ADVANCE centers have adopted majority HVAD. And we're inclined to think HTWR will still only ultimately hold 50% of the U.S. BTT market though it could now get there within the next quarter vs. by the end of 2013 given THOR's strong service and support and refocused marketing efforts. Longer term, we continue to believe that DT represents the truly compelling growth opportunity, of which THOR will be the only primary beneficiary for the next few years.
	2013 Sales Outlook Moves Lower to Reflect a Faster Competitive Ramp. We are adjusting our 2013 sales estimate to \$493M (flat) from \$505M, to reflect a faster HTWR ramp to 50% U.S. BTT share now by 2Q13

¹⁶¹ Leerink Partners, "Thoratec Corp., 1Q13: Sales Miss Amid Competitive Launch, But Management Confident in Outlook," May 3, 2013.

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	ex. stocking vs. end of 2013 previously. We view this new estimate as appropriately cautious but do see potential upside from: 1) Japan, for which we model minimal sales; 2) more robust DT growth, particularly at the mid-volume centers; and 3) faster international growth.
	Northland Securities maintained its Market Perform rating and price target, despite Thoratec having "been outflanked and outmaneuvered by Heartware." The analyst commented, "[w]e confess its [sic] frustrating to watch a market leadership position disappear away despite persistent competitive advantages for the HM-II": 162
	THOR reported Q1-13 numbers yesterday. Revs of \$118M were in line with our estimate of \$118M, but missed Street estimate of \$122M. EPS of \$0.31 was roughly in line. The company sold 716 units in the U.S., and 219 OUS. We guesstimate DT comprised roughly 55% contribution of U.S. units. Pricing stable. Overall, we confessfrustration with THOR has to be building up.
	Key Points It is unclear if any of the HVAD units in the quarter were used off-label, and to what extent. How they got reimbursed if used in DT is an entirely another question. However, if you believe prevailing wisdom that all HVAD units were used in BTT indications, then based on our calculations Heartware's BTT market share in the 77 sites that it currently is in, was somewhere between 45 - 60% (depending on whether you include or exclude stocking units). Goes without saying, BTT share in Heartware's clinical sites has to be greater than the average.
	Heartware's 244 OUS units essentially implies it regained leadership position. Not sure Thoratec got blindsided again with new geographic territories coming online and stocking HVAD units, or there was a fundamental shift.
	While we believe Thoratec's guidance is achievable, the story will be dominated by headlines and lumpiness, especially if Thoratec reverts back to market leadership position in Europe in Q2.
	In our opinion, Thoratec has been outflanked and outmaneuvered by Heartware. At least currently, the messaging wars seem to have been lost by Thoratec, despite ongoing neurological event issues with Heartware's HVAD pump. Not sure how the perception of HM-II being the "workhorse" pump can be regained back. The company talked about "sharpening its clinical messaging." At this stage, it is unclear to us

¹⁶² Northland Securities, "Thoratec Corporation (THOR), Weak Q1-13....," May 3, 2013.

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	what would persuade users that the evidence on neurological event rates with the HVAD vs. HM - II hasn't already shown them.
	Heartware has done a commendable job of being able to overcome all resistance, despite having issues with its pump and winning the perception wars. This is not to say that Heartware has a better chance long-term and the clinical issues with the HVAD have disappeared. However, it seems "ease of use" combined with a cage match mentality have helped Heartware gain >50% share in the 77 sites that it currently is in.
	Yes, incremental share gains for Heartware will become exponentially harder. The key question remainshow will the FDA view DT CAP approval now and in what form???
	We maintain our Market Perform rating on Thoratec. We confess its [sic] frustrating to watch a market leadership position disappear away despite persistent competitive advantages for the HM-II.
	Oppenheimer lowered its price target to \$42 from \$43 "on the slightly lowered ests," stating that "US share loss to HTWR was steeper than expected and the market did not expand as much as expected": 163
	1Q13 sales of \$117.7M (-7% y/y) were light of the Street's \$122.5M on slower HeartMate II sales. US share loss to HTWR was steeper than expected and the market did not expand as much as expected. THOR reiterated '13E sales/EPS guidance and sounded confident HTWR's share gains will moderate meaningfully ahead. The key remains market growth and while 1Q was slower, the market faced a very tough comparable and we've been here before with quarter-to-quarter variability. Comps ease in 2Q. Our previous survey work pointed to mid-teens U.S. mkt growth. After absorbing the share losses in '13, we expect THOR to grow more in-line with the market in '14, along with contributions from Japan and potentially PHP in Europe.
	Key Points 1Q slower. The sales miss was driven mostly by lower HeartMate II US sales, with units down low-teens y/y vs a tough comp (we were looking for neg. mid-single digits). Int'l HMII sales were in line, though units slightly lower/ASPs stronger. PVAD/IVAD were in line. CentriMag was a bright spot, solidly beating our est.
	US market commentary. Mgmt indicated that January was light, with February and March better, leading it to remain confident in its annual guidance. HTWR has penetrated its first 70 centers more quickly than expected.

¹⁶³ Oppenheimer & Co., Inc., "Thoratec Corp., 1Q Light; Guidance Reiterated; Mkt Growth is the Key," May 3, 2013.

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	From here, THOR believes its ability to hold market share is better in the remaining centers (consistent with our previous checks).
	N-T pipeline catalysts. HMII received full reimbursement in Japan on 4/1. Mgmt sees ~\$3M in sales upside to '13 from Japan vs previous guidance. The new (smaller/lighter) pocket controller launch is ramping in Europe; THOR anticipates FDA approval in 2Q, which could drive +\$2-3M/qtr sales benefit from upgrades.
	Market growth. We estimate 6% US/9% worldwide LVAD growth in 1Q. As we've said (and seen) in the past, we caution against focusing on quarter/ quarter variability. THOR's 1Q faced a very tough comparable, while 2Q eases meaningfully. We forecast 15% growth in '13 and '14.
	Adjusting ests. Our '13E/'14E sales lower ~\$7M to \$490M/\$539M (flat/+10% y/y) on the soft 1Q. Slightly lower HMII assumptions are offset by slightly stronger CentriMag and Int'l (Japan). EPS for '13E/'14E lower to \$1.76/\$2.05 on the lower top lines. Target goes to \$42 from \$43 on the slightly lowered ests.
	UBS wrote that "[m]issing on revs is not good, but unsurprising in this case as comp was tough & HTWR results already suggested slightly better-than-expected HVAD share." The analyst left its price target and Buy rating for the Company unchanged, but lowered its 2013 revenue estimate: 164
	Slightly bumpy start; mgmt comments encouraging THOR posted 1Q13 revs of \$118M vs. Street's \$123M & our \$119M. Missing on revs is not good, but unsurprising in this case as comp was tough & HTWR results already suggested slightly better-than-expected HVAD share. Further, consensus 1Q13 est for THOR disregarded directional guidance for a 2H-driven year. It has been clear for a long time that 2013 would be tough for THOR; improving growth in 2014 is more important. While occurring at several sites, HVAD encroachment into DT is not taking place broadly, which should enable acceleration.
	Slow growth in 2013; potential for very strong 2014-2016 growth THOR maintained FY rev / EPS guidance at \$490-510M / \$1.76-1.86, we lowered revs \$5M to \$493M. Guidance embeds HM2 holding a majority US BTT share, we model parity by YE. Previous guidance for Japan & pocket controller was probably conservative by \$5-10M & offset higher HVAD share. We est 2014 rev / EPS growth of 10% / 19% & cumulative 2014-2016 rev / EPS growth of 32% / 68%, which we think is reasonable if THOR retains DT at the vast majority of sites.

¹⁶⁴ UBS Equities, "Thoratec Corp., Unsurprising miss," May 3, 2013.

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	LVAD market growth slowed in 1Q13 US /ex-US LVAD mkts grew at 0% / 9% in 1Q13 vs. 17% / 40% in 2012. We thought 1Q13 growth would have been better but have seen slow quarters before followed by strong quarters. We believe mkt is highly underpenetrated & are not aware of reasons why the underlying momentum would change.
	Valuation – Buy; \$41 price target (DCF-based) On 2014E, THOR trades at ~7.5% UFCF yield.
	William Blair & Company said the Company's results were "not overly surprising [given competition from HTWR], but the question of how much share Thoratec will lose from here" was expected to weigh on the stock: 165
	On May 2, Thoratec reported first-quarter results that fell short of our and consensus expectations. Following HeartWare's (HTWR \$98.12; Market Perform) better-than-expected quarterly results released earlier this week, this result is not overly surprising, but the question of how much share Thoratec will lose from here (particularly in the destination therapy market) will likely weigh on the name for a few quarters.
	First-Quarter Review. Total first-quarter revenue of \$117.7 million (down 7%) missed our target by \$6.7 million and the consensus by \$4.8 million. Adjusted EPS of \$0.41 fell short of our estimate (\$0.48) and the Street (\$0.46).
	Pump Sales. Worldwide, chronic pumps (inclusive of HeartMate II and the PVAD/IVAD lines) for the quarter came in at 935 (down 12% year-over-year and 110 below our target). The unit shortfall this quarter can be largely attributed to Thoratec's U.S. performance, where it sold only 716 pumps (down 15% year-over-year) compared with our target of 821, as it clearly lost share in its key LVAD market.
	HeartMate II. The glaring data point was the 12%-13% year-over-year decline in HeartMate II domestic units (though HeartMate revenue was only down 8% year-over-year, because of an uptick in ASPs). The decline in units primarily came from softer-than-expected sales from the larger transplant centers; as open heart centers and smaller transplant center programs promisingly contributed growth in the high teens.
	Clearly the introduction of HeartWare's HVAD is affecting Thoratec's competitive position, though management indicated that most of the pain was felt in the bridge to transplant (BTT) portion of its business

¹⁶⁵ William Blair & Company, L.L.C., "Thoratec Corporation, Domestic Competition Weighs on First-Quarter Results; Uncertainty Surrounding Ongoing HVAD Impact Likely to Constrain the Stock," May 3, 2013.

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	rather than the faster-growth destination therapy (DT) market. We are not surprised to see strong initial uptake of HVAD in the BTT patient population, as they are indicated for the device. In addition, these patients are typically younger individuals that may represent easier patients to trial HeartWare's system before broadening usage into sicker and older people. Consequently, the question remains as to the impact of HVAD on Thoratec's DT business in the coming quarters. Our view is that HeartWare will successfully capture a meaningful portion of these cases (though not as much as most are projecting at this point), and this dynamic will likely weigh both on Thoratec's results and the stock in the coming quarters.
	Credit Suisse maintained its price target, but upgraded its rating to Neutral after "THOR reiterate[ed] guidance in spite of the small top line 1Q miss." The analyst "believe[d] that THOR's most challenging quarter of 2013 [was] behind it." However, the analyst warned that Thoratec "could see more downside from current levels" if HeartWare continued to capture market share: 166
	Summary: We are upgrading THOR to NEUTRAL. Our Underperform rating was based on the thesis that THOR stock would be range bound in the first few months of HTWR's US launch owing to uncertainty about share loss to HTWR in both the BTT and DT segments. With HTWR reporting a better-than-expected quarter, and THOR reiterating guidance in spite of the small top line 1Q miss, we believe that THOR's most challenging quarter of 2013 is behind it and the story may get incrementally better for the rest of the year. Importantly, we believe that off-label use of the HVAD pump in DT patients has been fairly limited so far (around 11%) and this provides a cushion for THOR since most of the growth in the US market is expected to come from growth in DT implants. Revenues from the ongoing Japan launch, controller upgrades and pipeline progress could provide small positive catalysts for the rest of 2013. We believe that now expectations for THOR are at a level where risk/reward is balanced relative to the rest of our coverage universe and hence we are upgrading to NEUTRAL with an unchanged PT of \$37. We are slightly changing our 2013 rev/EPS to \$497M/\$1.78 from \$501M/\$1.79 on updates to our US market model.
	Where we could be wrong: Our long term thesis of a market duopoly assumes that HTWR will successfully be able to control hemorrhagic stroke rates with better blood pressure management. We expect supporting data to be available by year end or early 2014. If HTWR is unable to sufficiently lower stroke rates, or if the FDA grants a particularly onerous CAP for HTWR's DT ENDURANCE trial it could create upside for THOR relative to our estimates. On the other hand if HTWR is able to capture more of the overall US market in 2013 than we model (25%), THOR could see more downside from current levels.
	Valuation: Our \$37 PT is DCF based.

¹⁶⁶ Credit Suisse, "Thoratec Corp. (THOR), Risk Reward Balanced, Upgrade to Neutral," May 6, 2013.

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	J.P. Morgan wrote that the Company "reported disappointing 1Q results" owing to market share captured by HTWR. The analyst thought that Thoratec's revenue guidance was "aggressive in the wake of THOR's 1Q results" and lowered its price target for the Company to \$32 from \$37: ¹⁶⁷
	Thoratec reported disappointing 1Q results Thursday after the close, with total revenues of \$117.7M (-7%) coming in \$5.0M below Street consensus. On the bottom line, adjusted EPS of \$0.41 (-20%) were \$0.05 below the Street, as higher spending offset a strong gross margin and allowed the top line shortfall to flow through to earnings. Below we walk through our thoughts on the quarter and the company's 2013 outlook.
	Round 1 goes to Heartware. Coming on the heels of Heartware's strong 1Q results earlier in the week, Thoratec's performance suggests that 1) VAD market growth was much slower than we anticipated to start the year and 2) the HVAD captured significant share in its first full quarter on the US market. We attribute the first of these issues to unusually tough comps and the lumpy nature of the VAD market in general and not to any fundamental change. As for the second issue, on Thursday Thoratec reiterated its view that Heartware's early success will prove transient, leading to faster growth for its own business in the back half of the year. It was with this in mind that management maintained its full year guidance despite the below Street 1Q. On the top line, the midpoint of this guidance \$490-510M range now implies that Thoratec will deliver 5% revenue growth over the balance of the year even as Heartware expands its presence domestically. While we wouldn't be surprised to see some volatility in market share as the HVAD launch progresses, this target strikes us as aggressive in the wake of THOR's 1Q results.
	Our own model now calls for Thoratec to post 2013 adjusted EPS of \$1.75 (-5%) on total revenues of \$488.8M (-1%), just below the low end of the company's guidance. This outlook assumes that the worldwide VAD market grows 12% on a unit basis, with the US up 11% and international volume rising 14%. Within the US, we assume 5% BTT growth and a 20% increase in the DT segment. We expect Thoratec's own volume to fall 4% to 3,931 pumps, as solid growth in DT (+13%) and international (+17%) are offset by significant share loss on the BTT side (-28%). This assumes that Heartware captures 38% of US BTT volume for the year, as well as 12% share of the DT segment through both modest off-label commercial use and its clinical trial, which we expect to resume enrollment under a CAP by midyear. Outside the US, we expect the two companies to essentially split the EU market, while Japan should be a tailwind for Thoratec, adding \$3-6M for the year.

¹⁶⁷ J.P. Morgan, "Thoratec Corp., Round 1 Goes to HTWR; Full Year Guidance Maintained But Now Backend Loaded," May 3, 2013.

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	News articles attributed the decline in the Company's stock price to its quarterly revenue and earnings miss. 168
	According to Bloomberg, following the disclosures on May 2, 2013, the average of analysts' price targets for the Company decreased to \$39.36 from \$40.64, or -3.2%, and out of 19 analysts with investment ratings for the Company, one upgraded its rating. (<i>See</i> Exhibit 5C.)
	Remark: Given that: 1) the Company's quarterly revenue and earnings fell short of analysts' consensus expectations; 2) its earnings miss fell on the heels of its main competitor, HeartWare, reporting "a huge beat;" 169 3) the "glaring data point" was declining year-over-year sales of HeartMate II in the U.S.; 170 and 4) despite the Company's reiteration of its 2013 guidance, certain analysts felt its guidance was "aggressive in the wake of THOR's 1Q results," 171 the statistically significant negative Company-specific return on May 3, 2013 is consistent with that expected in an efficient market.
8/1/2013	After market close on July 31, 2013, Thoratec released its second-quarter 2013 financial results. For the quarter, the Company reported revenues of \$130.5 million, GAAP income of \$23.2 million, or \$0.40 per share, and non-GAAP net income of \$30.4 million, or \$0.52 per share. This compared to analysts' consensus of \$121.1 million in revenue and non-GAAP EPS of \$0.43. The Company stated in its press release: 174
	"Thoratec delivered strong results during the second quarter, supported by our leadership positions with HeartMate II(R) and CentriMag(R), as well as our intense focus on driving continued growth in the global MCS market," said Gary F. Burbach, President and Chief Executive Officer. "HeartMate II unit volume

¹⁶⁸ *Dow Jones News Service*, "U.S. HOT STOCKS: LinkedIn, Regeneron, Teradata, Thoratec -2-," May 3, 2013, 2:05 PM; *Associated Press Newswires*, "Thoratec shares fall as 1Q net income, revenue miss estimates; HeartMate pump sales decline," May 3, 2013, 3:12 PM; *Bloomberg*, "Thoratec 1Q Adj. EPS, Rev. Miss; Down 4.2% Post-Mkt," May 2, 2013, 4:09 PM.

¹⁶⁹ Canaccord Genuity, "Q1 Light; Ceded Share Globally; Maintain Hold, Price Target To \$36," May 3, 2013.

¹⁷⁰ William Blair & Company, L.L.C., "Thoratec Corporation, Domestic Competition Weighs on First-Quarter Results; Uncertainty Surrounding Ongoing HVAD Impact Likely to Constrain the Stock," May 3, 2013.

¹⁷¹ J.P. Morgan, "Thoratec Corp., Round 1 Goes to HTWR; Full Year Guidance Maintained But Now Backend Loaded," May 3, 2013.

¹⁷² PR Newswire, "Thoratec(R) Reports Second Quarter Results," July 31, 2013, 4:02 PM.

¹⁷³ Bloomberg, "Thoratec Rises After 2Q Adj. EPS, Rev. Beat Ests," July 31, 2013 4:43 PM.

¹⁷⁴ PR Newswire, "Thoratec(R) Reports Second Quarter Results," July 31, 2013, 4:02 PM.

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	increased by nine percent on a global basis, highlighted by sequential growth in the U.S. market and robust growth internationally, driven in part by our successful initial launch in Japan," he added.
	"We recently celebrated the 15,000(th) implant of HeartMate II, a significant milestone for Thoratec, the broader field of mechanical circulatory support, and the patients that we serve," Burbach commented. "HeartMate II has set a new standard for clinical performance and has facilitated broader adoption of VAD therapy. We remain committed to continuing to drive the field forward through our significant investments in market and product development."
	The Company held a conference call with analysts later that day. ¹⁷⁵ During the call it issued updated guidance for 2013. It reaffirmed its revenue guidance of \$490–\$510 million; lowered it GAAP net income guidance to \$1.23–\$1.33 per share from previous guidance of \$1.32–\$1.42; and lowered its non-GAAP net income guidance to \$1.69–\$1.79 per share, from previous guidance of \$1.76–\$1.86. The Company's reduction in its earnings guidance was attributed to the previously announced acquisition of DuraHeartII as opposed to changes in its core business expectations:
	In terms of guidance for 2013, we are reaffirming our revenue outlook of \$490 million to \$510 million. As for non-GAAP earnings per share, our expectations for the core business remain unchanged, but we have adjusted our previous guidance to account for the acquisition of DuraHeart II, which adds operating expenses of \$6 million to \$7 million, or approximately \$0.07 per share on an after-tax basis. As such, our revised guidance for non-GAAP EPS is \$1.69 to \$1.79 per share. We note that our outlook continues to anticipate a lower gross margin in the second half of the year compared to the first half, driven primarily by revenue mix and expenses to be incurred as part of the transition from the EP Controller to the Pocket Controller.
	While there is expected variation between the first and second half, our full-year gross margin outlook remains consistent with the guidance that we provided at the beginning of this year. On a GAAP basis, our revised guidance range is \$1.23 to \$1.33 per share. GAAP guidance includes \$1.3 million of transaction expenses related to the DuraHeart II acquisition, which have been recorded to date, but it does not include any incremental transaction-related expenses to be incurred during the second half of the year, nor does it include the impact of the purchase price allocation, which is yet to be finalized. ¹⁷⁶

¹⁷⁵ CQ FD Disclosure, "Q2 2013 Thoratec Corporation Earnings Conference Call - Final," July 31, 2013.

¹⁷⁶ *Ibid*.

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	Wells Fargo Securities increased its 2013 and 2014 revenue estimates for the Company by \$9.7 and \$9.3 million, respectively, increased its 2013 EPS estimate by \$0.05, and lowered its 2014 EPS estimate by \$0.02, following Thoratec's "strong" quarterly results, in which "revenue growth was driven by strong international growth, particularly in Japan": 177
	Summary. THOR reported Q2 2013 sales of \$130.5MM which was \$9MM above consensus. Total revenue growth was +10.0% compared to a year ago. Total Q2 pump unit sales of 1,057 (+7.3% yr/yr) were above our estimate (990). The revenue growth was driven by strong international growth, particularly in Japan. U.S. HeartMate II (HMII) pump unit sales were up about 1% yr/yr driven by about 20% Group 3 growth. THOR indicated its implant share in the U.S. (ex-stocking) was relatively stable sequentially from Q1 to Q2. Outside the U.S. (OUS) HMII pump unit sales were up about +39% which represents a sequential acceleration from +5% in Q1 2013. Half of the international growth was driven by sales in Japan. THOR reiterated 2013 sales guidance of \$490-510MM (0-4%) which brackets consensus of \$495.0MM, but lowered 2013 adjusted EPS guidance of \$1.69-1.79 (-8% to -2%) due to added expense from the Duraheart acquisition which THOR expects to lower EPS by \$0.07. We raise our 2013 sales estimates by \$9.7MM to \$499.8MM and raise our 2013 EPS estimate by \$0.05 to \$1.78. We raise our 2014 sales estimate by \$9.3MM to \$530.9MM and lower our 2014 EPS estimate by \$0.02 to \$1.90.
	Strong Q2 – Share appears relatively stable. U.S. HMII pumps were up 1% yr/yr due as strong growth at Group 3 centers (+20%) was somewhat offset by a modest decline at Group 1 and 2 centers. THOR expects its growth to primarily come from Group 3 centers in the near term (18 months) but upstream movement to the earlier patient population at Group 1/2 centers is the longer-term growth opportunity. THOR believes HTWR's penetration into the DT segment was concentrated in a few small centers and expects this to remain unchanged going forward. However, THOR noted that there could be negative pressure on procedures when HTWR begins its supplemental DT cohort. THOR indicated more than 50% of its U.S. HMII implants were for DT in Q2. We estimate HTWR's U.S. share (ex-stocking) was about 24% in Q2, which is up slightly from 22% in Q1 2013.
	Valuation Range: \$41.00 to \$42.00 Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of 4.0x our 2014E sales. Risks to our thesis include better-than-expected HMII uptake and competitors gaining less share than we model.

¹⁷⁷ Wells Fargo Securities, LLC, "Thoratec Corp., THOR: Strong Q2--U.S. Rebounds--Japan Drives OUS Growth," July 31, 2013.

Investment Thesis: We expect THOR to be the benficiary [sic] of slower-than-expected uptake of HTWR's HVAD and increased risk to HTWR receiving destination therapy (DT) approval.

Credit Suisse called the quarter a "big big beat," and raised its 2013 sales and EPS estimates for the Company. The analyst attributed the quarterly beat, in part, to "a stronger market & market share than…forecast":¹⁷⁸

2Q Big Big Beat; Raising Estimates: THOR reported 2Q13 revs/EPS of \$130.5M (10%CC)/\$0.50 vs. our estimate of \$119.4M/\$0.43 & consensus of \$121.3M/\$0.43 (Ex. 2). The top-line beat was driven by US HM II sales (\$5M above our estimate on a stronger market & market share than we forecast), Japan (\$3M above our estimate of which half was stocking) & Centrimag (\$2M above our estimate) while lower-than-expected R&D added \$0.06 to EPS. THOR reiterated sales guidance (\$490-510M) despite the beat & lowered EPS guidance to \$1.69-1.79 from \$1.76-1.86 due to \$0.07 in dilution from R&D from the previously disclosed Dura Heart acquisition. For FY13 we're raising our sales/EPS estimates to \$505M/\$1.77 from \$493M/\$1.69 (consensus of \$495M/\$1.75) on the 2Q beat.

US Market Growth Key: THOR believes its US pump market share was stable sequentially in 2Q, implying market unit growth of 22% YoY ex-stocking (including PVAD/IVAD units, in line with our estimate) vs. +0% YoY in 1Q13. We note that for HTWR to have gained 250 bps of sequential share US market growth would have had to have been 25% (Ex. 1), with 30% growth needed for HTWR to take 500 bps. We believe 25-30% market growth is plausible given a relatively easy compare; however, we note that with some HVAD trialing/retraining in 1Q we could envision a scenario in which HTWR's sequential share gains were very modest. OUS ex-Japan we estimate 7% market unit growth in 2Q13 (including PVAD & IVAD) up vs. 4% in 1Q13. For FY13 we model ~14% US market unit growth (ex-stocking) & 10% OUS ex-Japan market unit growth with \$10M in THOR Japan sales.

Outlook: While long-term market growth will likely drive THOR stock appreciation, shares could be range-bound near term unless HVAD fails to take share or unless market growth meaningfully exceeds expectations.

Barclays reiterated its Overweight rating for the Company, stating that "THOR reported 2Q13 results ahead of our and consensus expectations on both the top and bottom lines," and noting that "THOR believes that the market was up 'much more positively' in the 2Q than the 1Q while there was 'relative stability' in terms of US market share with some 'bounce back' in share in large centers":¹⁷⁹

MATT'S MINDSET: THOR reported 2Q13 results ahead of our and consensus expectations on both the top and bottom lines, with revenue of ~\$130.5 MM (up ~10%) versus our \$122.8 MM and cons. \$121.3 MM. Adjusted EPS were \$0.52, above our \$0.44 and the cons. \$0.43. HMII units grew ~9% in the 2Q13 including 1% growth in the US and ~36% internationally. In the US, Group 3 centers (open heart and smaller transplant

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	center programs) grew ~20%, offset by a modest decline in the larger Group 1 and Group 2 transplant centers (given the launch of HVAD). OUS unit growth accelerated meaningfully in the 2Q (+36% from 4% in Q1), driven by the strong launch in Japan which contributed approximately half of international growth in Q2. THOR reiterated revenue guidance for the year, expecting a range of \$490–\$510 MM and lowered EPS expectations by ~\$0.07 to reflect the previously announced acquisition of DuraHeart assets and associated R&D.
	Notably, THOR believes that the market was up "much more positively" in the 2Q than the 1Q while there was "relative stability" in terms of US market share with some "bounce back" in share in large centers. While HTWR has yet to report, we think that the market health bodes well for its 2Q report, partially offset by what appeared to be some market share that moved back to THOR following HTWR trialing, in our view. Net-net we expect an overall good VAD quarter and reiterate our OW rating on THOR and HTWR.
	THESIS: We continue to be bullish on the long-term prospects for the left ventricular assist device (LVAD) market and expect the market to grow faster and THOR to retain more market share than the Street is expecting. We continue to be buyers of the shares based on our view of the LVAD market growth and potential size, THOR's assets, and compelling valuation. We remain positive on shares of HTWR and THOR and reiterate our OW ratings.
	Canaccord Genuity maintained its Hold rating for the Company, but increased its price target to \$37 from \$36, stating that the VAD market appears to be expanding based on the Company's "solid" results: 180
	Investment recommendation We do not yet know HTWR's numbers for Q2, but based on THOR's solid Q2 print, both US & OUS VAD markets appear to have been stronger in Q2 vs. Q1 – up 23%/11% vs. 4%/5%, respectively. That said, a big part of the difference is optical, as the Q1 Y/Y comp was the most challenging of the year, and Q2 the easiest. THOR's US units modestly beat (770 vs. 751E), but was still down Y/Y (-1%). The company's results really sparkled OUS, where results beat targets in Europe (where management said the overall market was quite strong and share was stable) and Japan (where the company's initial launch is going better than anticipated, aided in part by initial unit stocking).

¹⁷⁸ Credit Suisse, "Thoratec Corp. (THOR), 2Q Big Beat; US Market Share Trend in Focus," July 31, 2013.

¹⁷⁹ Barclays, "Thoratec Corp., Nice Beat; Market Bounce," August 1, 2013.

¹⁸⁰ Canaccord Genuity, "Q2 'Looks' A Lot Better Than Q1, Especially OUS; Maintain Hold," August 1, 2013.

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	If Heartware (HTWR: NASDAQ: \$92.42 BUY) hits our estimates for Q2 when it reports next week (which we expect), it would imply the company gained about half a point of US share and ceded modest European share to end Q2 just over 50%. In the US, our research continues to suggest THOR will give up at least 200bps more share in 2013. We maintain our HOLD rating on Thoratec shares and increase our year-end price target to \$37 from \$36.
	Investment highlights Total revenue of \$131M beat our estimate and consensus of \$121M. US VAD unit volume was down 1%; OUS up 35%. EPS (pro forma) of \$0.52 beat our \$0.42E.
	HTWR derivative: HTWR traded down after market in sympathy to THOR's results. We would be buyers on weakness for reasons discussed above.
	Leerink Partners said the Company delivered a "much better than expected 2Q:13 with a solid top-and-bottom line beat driven by broad-based strength in global HeartMate II sales - an upside surprise." The analyst noted that "the incremental dilution from the DuraHeart II acquisitions was already in [its 2013] estimate," and expected THOR shares to "trade up" in response: ¹⁸¹
	Bottom Line: THOR posted a much better than expected 2Q:13 with a solid top-and-bottom line beat driven by broad-based strength in global HeartMate II sales - an upside surprise given the degree of weakness seen in 1Q. U.S. Destination Therapy (DT) put up strong double-digit growth - we estimate 29%, in line with our estimate - an encouraging datapoint given the meaningful growth deceleration seen in Q1. Strong sales in Japan - ~40 pumps, 27 pumps ex. stocking - contributed to 39% international growth, with management now expecting Japan to contribute an incremental ~\$5 in sales vs prior guidance. Based on what we view as a positive quarter of broad-based outperformance, we expect THOR to trade up today with HTWR (OP) shares potentially under pressure as investors digest THOR management commentary that suggests HTWR did not gain incremental Bridge-to-Transplant (BTT) share vs. Q1. Our price target is \$38.
	Broad-Based HeartMate II Strength Drives Top- And Bottom-Line Beat. THOR reported sales of \$130.5M (+10% y/y) beating estimates by ~\$10M, and EPS of \$0.52 beating us and consensus of \$0.47 and \$0.43, respectively. THOR had particularly strong U.S. BTT HeartMate II sales - 284 vs. 206 - where we estimate THOR maintained ~56% market-share ex-HTWR stocking, significantly better than the ~48% we expected.

¹⁸¹ Leerink Partners LLC, "Thoratec Corp., Broad Based Strength in HeartMate II Sales Drives Top and Bottom Line Beat," August 1, 2013.

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	And in the U.S., DT returned to its strong growth trajectory - +29% y/y by our estimates and in-line with our thinking. OUS HeartMate II sales ex-Japan grew 20% Y/Y - up from just 4% last quarter - with the newly launched Japanese market adding another ~20% Y/Y growth on 40 pumps in the quarter (25 commercial and 15 stocking).
	2013 and 2014 Sales Estimates Increased On Stronger Performance, EPS Estimates Moderated Slightly For GM and Opex Adjustments. We are increasing our 2013 and 2014 sales estimates to \$499.9M (+1.7%) and \$549.5M (+9.9%) from \$493.3M and \$548.6M, respectively, on increased HeartMate II estimates. We are slightly moderating our 2013 and 2014 EPS estimates to \$1.74 (-5.3%) and \$1.85 (+6.8%) from \$1.77 and \$1.87 to reflect lower GM assumptions as the new pocket controller is rolled out and on higher opex assumptions. 2013 sales guidance of \$490-\$510M was reiterated while EPS was lowered \$0.07 to \$1.76-\$1.86 to reflect the incremental dilution from the DuraHeart II acquisitions - this adjustment was already in our estimate.
	Pipeline Update: HeartMate III Delayed Again. THOR noted that the HeartMate III CE Mark trial will be delayed several months until early 2014, but doesn't expect it to have a material impact to the development timeline. The PHP CE Mark trial is slated to begin 4Q13 in High-Risk PCI, and a U.S. trial could begin in 2014. DuraHeart 2 FIM is still expected in 2016.
	Northland Securities upgraded the Company's stock to Outperform in response to "Q2-13 numbers blowing past [the] Street's [] and our estimate." According to the analyst, "[w]e definitely missed the boat on upgrading the stock earlier"; Thoratec "shares seem to have stabilized and the worst seems behind us": 182
	Summary THOR reported Q2-13 numbers yesterday, with \$130.5M revs, blowing past Street's \$121M and our estimate \$126M. HM-II U.S. units were 770, up sequentially from 716 units in Q1. International HM-II units came were 287, of which 40 came from Japan contribution. Overall, seems like market shares in the U.S. stabilized and/or improved. We are upgrading the stock to an Outperform as we believe, based on company commentary, that shares seem to have stabilized and the worst seems behind us.
	Key Points We definitely missed the boat on upgrading the stock earlier. However, our fundamental concerns about the relative perceptions of the HeartMate-II and HVAD remain. The clinician community, it seems is still is

¹⁸² Northland Securities, "Thoratec Corporation (THOR), Upgrading to Outperform...seems like worst is behind us...," August 1, 2013.

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	willing to give HVAD a pass on neurological events. We have remained, and still remain positively predisposed to the HeartMate-II given a "relatively" benign patient management profile.
	Based on THOR's commentary, the protocol for Heartware's DT expanded trial has not been finalized yet. Not sure what the hiccup is on Heartware's side, if indeed that is the case. Thoratec indicated that it was factoring in share losses in DT due to trial enrollment for Heartware in the second half of 2013.
	Heartware is scheduled to report numbers next week, and it will be interesting to see where market shares stack up, and if there has been any delay in the DT trial protocol finalization and/or enrollment. As we have said before, our analysis suggests that the HVAD is going to be delayed by about a year in the U.S., best case.
	Thoratec's 247 OUS units (ex-Japan) essentially implies it regained leadership position. Not sure about the market dynamics, and we will have to wait for Heartware to report.
	While we believe Thoratec's guidance is achievable, the story will be dominated by headlines and lumpiness, especially if Heartware reverts back to market leadership position in Europe in Q3 or Q4. Moreover, what is unclear to us is how many centers Heartware added in the quarter and how many BTT units it implanted. Judging by Thoratec's numbers, if the overall market (BTT + DT) did not expand by much, then Heartware's share "could" have taken a hit in the United States. As we said in our Q1 note, incremental share gains for Heartware would become exponentially harder.
	We are upgrading Thoratec to an Outperform rating and re-establishing our PT of \$42, which is based on 5x forward P/S. It just seems that Thoratec has managed to stabilize the ship, and combined with potentially more difficulty for Heartware to gain additional share + greater scrutiny on the DT trial, it seems like a better time to get more constructive on Thoratec.
	Oppenheimer & Co. said the Company's results were "significantly above" its estimates and that "US outperformance reflects both a better market and share retention." The analyst bumped up its price target estimate for the Company to \$41 from \$40 based "on higher estimates": 183
	Summary 2Q sales of \$130.5M (+10% y/y) were significantly above our \$119.3M/Street's \$121.3M, led by a better-than-expected initial contribution from Japan and broad-based strength both in US/int'l. Following a weak 1Q,

¹⁸³ Oppenheimer & Co., Inc., "Thoratec Corp., Japan, US Strength Surprises in 2Q," August 1, 2013.

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	THOR believes the market was "substantially stronger", but also senses its share has "bounced back" at some larger US centers that HTWR made initial inroads in. THOR reiterated '13E sales (\$490-510M). Overall, an encouraging recovery from a tough 1Q. The next event is CMS' proposed national coverage decision on LVADs next week; while there could be noise around the proposal, we don't expect fundamental impact on the ground. Pipeline developments and Japan market development take increasing focus ahead.
	Key Points 2Q sales. Total pump units were +82 vs our estimate in the US and +22 OUS, primarily driven by HeartMate II strength (PVAD/IVAD was slightly below). Japan was the main delta OUS (included ~15 stocking units). Pocket controller impact (~ \$2M) was in-line. Pricing looks largely stable WW. CentriMag was slightly ahead.
	US market. THOR believes DT market growth (in double-digits) led; THOR didn't see material changes in off-label use dynamics sequentially. Contribution from larger Group I/II centers was higher vs 1Q, while smaller centers continue to be a solid growth driver for THOR.
	Our thoughts. We believe the US outperformance reflects both a better market and share retention. We don't assume a linear trend for 2H, though, given Japan stocking and HTWR's additional destination therapy cohort of its ENDURANCE trial which should begin enrolling soon. While THOR's better 2Q may raise HTWR questions, we see consensus as achievable.
	NCA. CMS' proposed memo decision date for the open National Coverage Analysis is earmarked for 8/7. THOR doesn't expect meaningful changes from the decision, and sees changes to BTT/DT definitions as "extremely unlikely". If anything, it is optimistic a clarification on surgeon qualifications will be favorable for the market (current uncertainties have been a headwind).
	Adjusting estimates. Our '13E sales rise \$11M to \$496M and EPS to \$1.74 on the 2Q beat. For '14E, we look for \$531M sales/\$1.94 EPS (+7%/11%). Bumping price target to \$41 from \$40 on higher estimates.
	Piper Jaffray reiterated its Overweight rating and price target for the Company, stating that it "bounced back more quickly than expected in 2Q13." It also noted that Thoratec's reaffirmed revenue guidance should be viewed as "incrementally positive" as it "now absorbs a larger than originally contemplated HTWR DT CAP": ¹⁸⁴

¹⁸⁴ Piper Jaffray, "Thoratec Corp. (THOR), THOR Bounces Back," August 1, 2013.

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	After posting disappointing results in 1Q13, but maintaining FY13 guidance, Thoratec bounced back more quickly than expected in 2Q13 with revenue of \$130.5M (+10%y/y) vs. consensus expectations of \$121.3M. FY13 revenue guidance was again maintained at \$490M-\$510M but this guidance now absorbs a larger than originally contemplated HTWR DT CAP and so must be viewed as incrementally positive. While THOR pointed to a sequentially improved LVAD market, management also commented that market share had stabilized vs. street expectations for continued HTWR share gains. Adj. EPS also outperformed at \$0.52 vs. consensus \$0.43. We reiterate our OW rating and \$44 PT.
	DT Now Approaching 60% of THOR Share and Growth Coming from Group 3 Centers: We believe share in large Group 1 & 2 centers has begun to stabilize, although this share will continue to fluctuate with trial usage. Growth in Group 3 (open-heart and smaller transplant) centers in the US tends to vary by center, but overall growth in this group has driven utilization, and THOR expects this trend to continue. For 1H13, Group 3 centers represented approximately 22% of HM-II volume and with 50 potential centers, this group is expected to be the main driver of near-term growth. During 2Q, THOR shipped 1,057 chronic-use pumps, with 770 in the US and 287 OUS, for a total 7% y/y increase, though y/y revenues were stable. CentriMag/PediMag showed 31% y/y growth, offset by declines in PVAD revenue. While US revenue of \$99M was up only 2%, OUS revenue driven by launch of HM-II in Japan led to a 47% y/y increase (closer to 20% OUS growth without Japan). The new pocket controller also contributed about \$2M to revenue in the quarter.
	Japan Ahead of Plan: The Japanese launch of HM-II was strong, and accounted for 50% of international growth for the LVAD. THOR noted that the 2H13 contribution from Japan would likely equal the 2Q13 contribution given what was observed with stocking during the quarter. Approximately 40 units were shipped to Japan in 2Q13, with ~15 claimed as stocking units and the remaining ~25 implanted. THOR expects to dedicate more resources to Japanese market development given its expectation for a substantial market opportunity.
	Risks To Achievemet Of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.
	J.P. Morgan commented that "Thoratec's 2Q results should help to quell investor concerns about VAD market growth" and that the quarterly upside had "reduce[d] the risk that guidance [would] need to be lowered, something which we previously viewed as a real possibility." The analyst maintained its Neutral rating, but increased its price target for the Company to \$35 from \$32: ¹⁸⁵

¹⁸⁵ J.P. Morgan, "Thoratec Corp., Strong 2Q Results Should Quell Market Growth Concerns," August 1, 2013.

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	Thoratec reported strong 2Q results Wednesday after the close, with total revenues of \$130.5M (+10%) coming in \$9M above Street consensus and \$8M better than our own estimate, driven by strong US market growth and a better than expected HeartMate II launch in Japan. On the bottom line, adjusted EPS of \$0.52 (+16%) topped consensus by \$0.09 and were \$0.05 better than our thinking, and contained operating expenses allowed the top line upside to flow through to earnings.
	Thoratec's 2Q results should help to quell investor concerns about VAD market growth The company sold 1,057 pumps in 2Q, up 7% YOY and 67 above consensus. VAD revenues of \$129.9M grew 10%, as strong HeartMate II and Centrimag growth offset further declines in the PVAD/IVAD product lines. Meanwhile, revenue per implant rose 3% YOY to \$122,875, helping to boost the impact of this unit upside on revenues. HeartMate II sales rose 9% to \$115.7M, \$7M above consensus, while PVAD/IVAD revenues of \$2.7M (down 29%) were essentially in-line with the Street. Finally, Acute Support sales of \$11.5M (+44%) were \$2M better than consensus, as that segment continues to see solid traction.
	But share remains the bigger issue in our view. These results are encouraging and suggest that trepidation about VAD market growth in the wake of disappointing 1Q implant volumes was misplaced. In fact, taken together with our Heartware estimates we now estimate that the US VAD market grew 14% during 1H13, up from 12% in 2012. However, we continue to view the competitive dynamics in the US as by far the more important piece of the story for Thoratec in the near-term. On this front we will need to wait for Heartware's results next week to draw any firm conclusions, but we don't believe that Thoratec's impressive second quarter performance necessarily does anything to change the narrative from our survey earlier this month – namely that the HVAD continues to enjoy solid momentum.
	The upside this quarter does put Thoratec in a much better position to achieve its full-year guidance. Management reiterated its top line outlook on Wednesday, calling for total 2013 revenues of \$490-510M (+0-4%). The midpoint of this range now implies that Thoratec will deliver 2% revenue growth over the balance of the year, up from 1% in 1H13. While we don't see this as an easy hurdle with Heartware continuing to expand its presence domestically, the 2Q upside helps make the year much less backend loaded and reduces the risk that guidance will need to be lowered, something which we previously viewed as a real possibility.
	News stories attributed the increase in the Company's stock price to its better-than-expected earnings. 186

¹⁸⁶ Associated Press Newswires, "Thoratec 2nd-quarter net income and revenue top expectations, shares rise aftermarket," July 31, 2013; Dow Jones News Service, "Thoratec Shares Rise on Better-Than-Expected 2nd-Quarer Results," July 31, 2013; Dow Jones Newswire, "US HOT STOCKS: SanDisk, Sturm Ruger, Teradata, Thoratec -3-," August 1, 2013; Bloomberg, "Thoratec Rises After 2Q Adj. EPS, Rev. Beat Ests," July 31, 2013,

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	According to Bloomberg, following the disclosures on July 31, 2013, the average of analysts' price targets for the Company increased to \$39.27 from \$37.73, or 4.1%, and out of 16 analysts with investment ratings for the Company, one upgraded its rating. (<i>See</i> Exhibit 5C.) ¹⁸⁷
	Remark: Given that: 1) the Company's quarterly financial results were considered a "big big beat," exceeding both revenue and earnings expectations; 2) this bounce back from the previous quarter occurred "more quickly than expected;" 3) the Company's affirmation of revenue guidance was "incrementally positive" as it "now absorbs a larger than originally contemplated HTWR DT CAP"; 4) the reduction in the Company's earnings guidance was due to the DuraHeart II acquisition, as opposed to "changes in core business expectations;" and 5) the Company's quarterly results demonstrated "relative stability" in its U.S. market share, the statistically significant positive Company-specific return on August 1, 2013 is consistent with that expected in an efficient market.
10/31/2013	After market close on October 30, 2013, Thoratec released its third-quarter 2013 financial results. For the quarter, the Company reported revenues of \$126.4 million, GAAP income of \$18.9 million, or \$0.32 per share, and non-GAAP net income of \$28.5 million, or \$0.49 per share. This compared to analysts' consensus of \$121.2 million in revenue and non-GAAP EPS of \$0.40. The Company stated in its press release: 195

^{4:43} PM; Seeking Alpha, "Thoratec posts a solid Q2 earnings report," August 1, 2013, 12:22 PM.

¹⁸⁷ Figures exclude Leerink Partners LLC for which the post-event price target is unavailable from Bloomberg.

¹⁸⁸ Credit Suisse, "Thoratec Corp. (THOR), 2Q Big Beat; US Market Share Trend in Focus," July 31, 2013.

¹⁸⁹ Piper Jaffray, "Thoratec Corp. (THOR), THOR Bounces Back," August 1, 2013.

¹⁹⁰ *Ibid*.

¹⁹¹ CQ FD Disclosure, "Q2 2013 Thoratec Corporation Earnings Conference Call - Final," July 31, 2013.

¹⁹² Barclays, "Thoratec Corp., Nice Beat; Market Bounce," August 1, 2013.

¹⁹³ PR Newswire, "Thoratec(R) Reports Third Quarter Results," October 30, 2013, 4:02 PM.

¹⁹⁴ Bloomberg, "Thoratec Boosts Forecast for Yr Adj. EPS After 3Q Beats," October 30, 2013, 4:08 PM.

¹⁹⁵ PR Newswire, "Thoratec(R) Reports Third Quarter Results," October 30, 2013, 4:02 PM.

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	"Thoratec generated strong results during the third quarter, highlighted by continued growth in our HeartMate II(R) and CentriMag(R) product lines," said Gary F. Burbach, President and Chief Executive Officer. "We continue to drive expansion of the worldwide market for MCS therapy and delivered international revenue growth of 32% during the quarter," he added.

	"We remain solidly on track to achieve our targets for 2013 and continue to invest in strategies to promote sustainable long term growth, while strengthening our industry leading position within the field of mechanical circulatory support," Burbach commented. "Moreover, we look forward to advancing the therapy through our ongoing global market development initiatives, as well as the initiation of clinical trials for our exciting HeartMate III and HeartMate PHP pipeline programs."
	The Company also updated its guidance for 2013, stating that it expected revenue to be in the range of \$500–\$505 million, compared to previous guidance of \$490–\$510 million; GAAP net income to be in the range of \$1.30–\$1.35 per share, compared to previous guidance of \$1.23–\$1.33; and non-GAAP net income to be in the range of \$1.80–\$1.85 per share, compared to previous guidance of \$1.69–\$1.79.
	The Company held a conference call with analysts later that day. ¹⁹⁷
	Separately, after market close on October 30, 2013, the Centers for Medicare & Medicaid Services ("CMS") posted its "Decision Memo for Ventricular Assist Devices for Bridge-to-Transplant and Destination Therapy (CAG-00432R)" In its conference call, the Company commented that the CMS decision was expected to provide clarity regarding Joint Commission certification standards:
	On August 1, CMS issued its proposed national coverage decision, or NCD, for Medicare reimbursement of ventricular assist devices. CMS has a long-standing policy of providing reimbursement coverage for LVAD therapy and the proposed rule ensures that Medicare beneficiaries will continue to have access to this life-saving therapy.

¹⁹⁶ *Ibid*.

¹⁹⁷ CQ FD Disclosure, "Q3 2013 Thoratec Corporation Earnings Conference Call - Final," October 30, 2013.

¹⁹⁸ https://www.cms.gov/medicare-coverage-database/details/nca-decision-memo.aspx?NCAId=268

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	From a reimbursement perspective, the proposed NCD further clarifies criteria for reimbursement under the
	bridge to transplant designation, including a provision that patients be listed on the national UNOS transplant list. We support the CMS proposal to appropriately define device reimbursement based on long-standing FDA
	approval protocols for long and short-term indications. The proposal also sets forth well-defined standards for
	center certification and VAD team personnel requirements. We believe these are beneficial proposals that will
	help establish important clinical standards to ensure appropriate access to LVAD therapy.
	In terms of center development, we ended the third quarter with 352 HeartMate II centers worldwide. We
	added eights centers internationally during the third quarter bringing our total number of international centers
	to 183, including the four incremental centers in Japan. We added two new centers in the US during the quarter and ended the period with 169 centers domestically. 125 of these centers have obtained Joint
	Commission certification for destination therapy as three additional programs received certification during the
	third quarter.
	While overall center growth in the US has been slower than our original projections for 2013, we believe this has been due in part to uncertainty over certification standards. They [sic] CMS national coverage decision should provide clarity on this issue and allow for continued adoption of LVAD therapy at new centers in the years to come. ¹⁹⁹
	years to come.
	Wells Fargo Securities raised its price target for the Company to a range of \$45-46 from \$41-42, following "strong" quarterly results that were "above consensus," and market share that "remained relatively stable during the quarter": ²⁰⁰
	Summary. THOR reported Q3 2013 sales of \$126.4MM which was \$5.1MM above consensus. Total revenue
	growth was +7.4% (+6.6% ex-Fx) compared to a year ago. Total Q3 pump unit sales of 987 (-2.0% yr/yr)
	were above our estimate (958). The revenue growth was driven by their Heartmate II and CentriMag product
	lines. International HeartMate II (HMII) unit growth was +26% driven primarily by the Japan launch which
	accounted for two-thirds of the OUS growth. Offsetting the strong international growth was a yr/yr decline in
	U.S. HeartMate II pump sales. THOR indicated its implant share in the U.S. and internationally was relatively stable from Q2 to Q3. THOR narrowed 2013 sales guidance to \$500-505MM (2-3%) which brackets
	consensus of \$502.4MM, and raised 2013 adjusted EPS guidance to \$1.80-1.85 (-2% to +1%) from \$1.69-1.79
	which includes an unexpected, one-time tax benefit of \$0.05 recorded in Q3. We raise our 2013 sales
	estimates by \$6MM to \$505MM and raise our 2013 EPS estimate by \$0.09 to \$1.84. We lower our 2014 sales

¹⁹⁹ CQ FD Disclosure, "Q3 2013 Thoratec Corporation Earnings Conference Call - Final," October 30, 2013.

²⁰⁰ Wells Fargo Securities, LLC, "Thoratec Corp., THOR: Strong Q3 Share Relatively Stable," October 30, 2013.

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	estimate by \$1MM to \$540MM and lower our 2014 EPS estimate by \$0.13 to \$1.80 to account for higher R&D spending. We raise our valuation range to \$45-46 from \$41-42 as we transition forward the target multiple to 2015.
	WW pumps better than expected - Share appears relatively stable. On a worldwide basis, HMII pumps were up 1% yr/yr on strong international pump growth of 26%, with the majority of the growth coming from Japan. U.S. HMII pumps declined yr/yr as new center recruitment was impacted by the uncertainty over certification standards. THOR expects the CMS NCD decision to provide clarity to the issue and remove some constraints and anticipates a stronger flow of new centers than what was seen over the last three quarters. THOR added two centers in the quarter, ending the quarter with 169 centers domestically. THOR is getting positive feedback from physicians and administrators at the implanting centers and there appears to be a desire for these centers to grow their LVAD programs. From a share perspective, THOR believes share domestically and internationally remained relatively stable during the quarter.
	Valuation Range: \$45.00 to \$46.00 from \$41.00 to \$42.00 Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of 4.0x our 2015E sales. Risks to our thesis include better-than-expected HMII uptake and competitors gaining less share than we model.
	Investment Thesis: We expect THOR to be the benficiary [sic] of slower-than-expected uptake of HTWR's HVAD and increased risk to HTWR receiving destination therapy (DT) approval.
	Barclays noted that "THOR reported 3Q13 results that came in ahead of consensus expectations," but that "implied 4Q guidance was lower than consensus and OUS growth ex-Japan was below prior quarters." However, the analyst concluded that "net/net, this was a good quarter for THOR," and raised its price target for the Company to \$45 from \$43 "to reflect market conditions and the strong result": ²⁰¹
	MATT'S MINDSET: THOR reported 3Q13 results that came in ahead of consensus expectations, with revenue of ~\$126 MM (up ~10%) versus consensus of \$121 MM and EPS of \$0.49 (includes \$0.05 benefit from nonrecurring release of tax reserves), above our \$0.40 and the consensus estimate of \$0.39. HMII units grew ~1% in the 2Q13 including ~26% growth internationally offset by a decline in the US. International growth was driven by Japan which accounted for ~2/3rds of HMII unit growth Y/Y. In the US, we highlight an estimated 18% growth in DT pumps, which now comprise ~60% of THOR's US HMII mix. We estimate BTT units declined ~26% given HTWR's ramp (with THOR indicating market growth was still 'strong').

²⁰¹ Barclays, "Thoratec Corp., Good Quarter; Market still Attractive," October 31, 2013.

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	THOR narrowed revenue guidance for 2013 to \$500-\$505 MM (prior \$490-\$510 MM), while EPS ex-items guidance was increased to \$1.80-\$1.85 (prior \$1.69-\$1.79) which includes a \$0.05 tax benefit in the 3Q. This outlook implies a revenue range of \$125.5 - \$130.5 mm for the 4Q, slightly below the consensus estimate of \$133 mm coming into the print. Embedded within this outlook is the expectation for continued 'solid' market growth, as well as seasonally related sequential revenue increase during the 4Q moderated modestly by timing factors related to the Pocket Controller conversion and stocking activity in Japan.
	Net/net, this was a good quarter for THOR but implied 4Q guidance was lower than consensus and OUS growth ex-Japan was below prior quarters. Notably, while THOR could benefit from growth in Japan in 2014, it may see some 'trial drain' in the US (from HTWR) and the EU (HMIII and MVAD) and will have higher spending from Duraheart. Our forward revenue and EPS assumptions remain relatively unchanged. We continue to be bullish on the long-term prospects for the LVAD market and expect the market to grow faster and THOR to retain more market share than the Street is expecting. We continue to recommend shares based on our view of LVAD market growth and potential size, THOR's assets, and valuation. We are raising our PT to reflect market conditions and the strong result. Our new \$45 PT is based on ~4.3x 2015E revenue of \$596 MM. Our prior \$43 PT was based on ~5x prior 2013E revenue of \$499 MM.
	Barrington Research raised its price target to \$49 from \$40 "based a growing HF market," and said the Company's results were "clearly a nice beat." The analyst added that "THOR has performed better than most expected given HTWR's BTT launch," and that "the CMS ruling should make it harder to classify DT patients into a BTT category, which we believe is very positive for THOR": ²⁰²
	THOR had a solid third quarter with revenue up 7% to \$126.4 million versus \$117.8 million in Q3/12, above our estimate of \$120 million and the consensus estimate of \$121.2 million. GAAP EPS were \$0.32, down from \$0.41 in Q3/12, but above both our estimate of \$0.31 and the consensus of \$0.29. Non-GAAP EPS were \$0.49, flat versus prior year but above both our estimate of \$0.42 and the consensus of \$0.40. There was a positive tax impact of about \$0.05, but clearly a nice beat.
	In our opinion, THOR has performed better than most expected given HTWR's BTT launch in the beginning of the year. Clearly, HTWR is taking share and having an impact on THOR's results. However, it sounds like THOR has some very sticky BTT accounts and the CMS ruling should make it harder to classify DT patients into a BTT category, which we believe is very positive for THOR. To our point above, worldwide pump sales

²⁰² Barrington Research, "Thoratec Corporation (THOR-NASDAQ) Solid Q3/13 Results; CMS Decision Requires BTT Eligible Patients to Be On the Transplant List which is Favorable for THOR; Market is Growing," October 31, 2013.

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	were up 2.5% to \$87.1 million versus \$85 million in Q3/12 while non-pump sales grew 20.2% to \$38.7 million
	versus \$32.2 million in Q3/12. The number of pumps was 987, essentially flat versus Q3/12. There were
	roughly 737 pumps shipped within the U.S. and 250 pumps sold internationally. Overall growth in the U.S.
	was a bit slower than originally projected, but only by a couple pumps. Total U.S. revenue grew 2.2% to \$99.6
	million versus \$97.5 million in Q3/12, while international revenue increased 32% to \$26.8 million versus \$20.3 million in Q3/12. HeartMate sales grew to \$112.8 million, up 6.5% versus \$105.9 million in Q3/12,
	driven primarily by expansion of international sales (particularly in Japan, which is a relatively new geography
	for THOR) and the Pocket Controller launch. Another source of strength in the quarter was CentriMag, which
	has been benefiting from THOR going direct in several international geographies. CentriMag increased 39%
	to \$10.4 million versus \$7.5 million in Q3/12. Management pointed out that the third quarter was the last
	quarter of easier comps as a result of going direct. PVAD and IVAD pump product lines continued to decrease
	as expected. PVAD and IVAD were down 31.5% to \$3.8 million versus \$2.6 million in Q3/13.
	Management narrowed its FY/13 revenue guidance to a range of \$500-505 million versus \$490-510 million
	and increased GAAP EPS guidance to \$1.30-1.35 and Non-GAAP EPS to \$1.80-1.85. We are reiterating our
	OUTPERFORM investment rating and raising our price target to \$49 based a growing HF market.
	Following "solid Q3 results," Canaccord Genuity upgraded its rating for the Company and increased its price target to \$45 from \$38 to reflect "the US LVAD market's growth potential near and long term," as well as the "growth prospects near term in Japan": ²⁰³
	After solid Q3 results, which included both upside and downside to various metrics in our model, we feel it's
	time to formalize our previously published "call" to own both stocks within the global VAD duopoly. We
	continue to see more upside potential in shares of Heartware (HTWR: NASDAQ : \$73.35 BUY) over time
	via share gain and faster growth, which relies on 1) improved stroke outcomes in future DT clinical data per revised BP management protocol to drive DT approval by H2:16, and 2) MVAD progressing to FIM followed
	by European and US trials in 2014/2015 timeframes. That said, we recognize there is risk inherent in these
	assumptions. What's more, our survey work and other research support our bullish stance on the US LVAD
	market's growth potential near and long term. Lastly, we are optimistic about THOR's growth prospects near
	term in Japan, and longer term in the acute HF market with HM-PHP (not in our estimates). Thus, we upgrade
	THOR to BUY and increase our target from \$38 to \$45 (4.5x EV to 2015E sales; HTWR target uses 5.5x, via
	faster expected growth).

²⁰³ Canaccord Genuity, "Own Both - Rating To Buy, Target To \$45," October 31, 2013.

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	Investment highlights Sales (\$126M; +7%) beat us/consensus (\$123/\$121M) on higher non-pump revenue (US Pocket Controller upgrades) and Japan stocking. EPS of \$0.49 beat \$0.39/\$0.40E on higher revenue, lower OpEx and lower effective tax rate (worth \$0.05).
	US VAD units (737) declined 6% Y/Y – in line with consensus, slightly lower than our estimate (759). OUS units (250) grew 20% (in line).
	CMS issued its final VAD NCD, which was as expected. It removed Status 7 option for BTT listing, which our research suggests won't materially alter the way VAD patients broadly are managed in the US.
	Credit Suisse increased its 2013 revenue and EPS estimates for the Company "based on the 3Q beat & updated guidance": 204
	Top-Line Beat Peripherals-Driven; Updating Estimates: THOR reported 3Q13 revs/EPS of \$126M/\$0.49 vs. our estimate of \$120M/\$0.39 & consensus of \$121M/\$0.40. Total US pump sales were in line with consensus with the revenue beat driven by strong peripherals sales. Gross margins were light of our estimate more than offset by lower than expected R&D. Of note \$0.05 of the \$0.10 EPS beat came from a one-off lower tax rate. THOR narrowed the range on its sales guidance to \$500-505M from \$490-510M & raised EPS guidance to \$1.80-1.85 from \$1.69-1.79. For FY13, we're raising our sales/EPS estimates to \$504M/\$1.84 from \$502M/\$1.77 (consensus of \$495M/\$1.75) based on the 3Q beat & updated guidance.
	THOR Believes US Share Stable; NCD Likely Positive for THOR: THOR noted sequentially stable US market share on its 3Q call. In the US we forecast 18% YoY US market growth 3Q13 (ex-PVAD/IVAD) vs. 21% YoY in 2Q13 with 500 bps of sequential BTT share gains for HTWR. OUS ex-Japan, we estimate 12% market unit growth in 3Q13 (ex-PVAD & IVAD) vs. 17% in 2Q13. Separately, today CMS published the final NCD for LVADs which appears to restrict BTT usage to UNOS status 1a & 1b patients with exclusion of UNOS status 7 patients which may be marginally positive for THOR & negative for HTWR (though HTWR claims very few of their Medicare or commercial patients use status 7, blunting the ruling's impact).
	Why we Like THOR: We think THOR can grow sales ~9% 2013-17 despite encroachment from HTWR in the US. Our growth estimates assume steady LVAD share OUS-ex-Japan & ~14% market growth, with an incremental ~\$40M/year in sales in Japan by 2017 (Japan adds ~2% to our 2013-17 growth CAGR). Also, we

²⁰⁴ Credit Suisse, "Thoratec Corp. (THOR), 3Q Good; NCD Likely Modest Positive," October 30, 2013.

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	forecast ~\$20M in PHP sales by 2017 which adds another ~1% to our 2013-17 sales CAGR, helping to offset the US BTT share gains we forecast for HTWR in 2013 & DT share gains in 2016/17.
	Leerink Partners said that the Company delivered a "solid 3Q13 with a top- and bottom-line beat." The analyst reiterated its Outperform rating and price target for the Company, increased its 2013 estimates "on strong performance," and adjusted its 2014 estimates downward "for increased R&D spend and HVAD DT Trial": ²⁰⁵
	Bottom Line: THOR posted a solid 3Q13 with a top- and bottom-line beat driven by: 1) Stronger-than-expected U.S. pump volumes vs. us; 2) Product upgrade revenues driven by the Pocket Controller launch; and 3) a \$0.05/share 1x tax benefit. Total pump volumes were relatively in-line to slightly better than consensushighlighted by strong double-digit U.S. DT growth and continued OUS strength driven by adoption in Japan. Management narrowed 2013 sales guidance to \$500M-\$505M from \$490M-\$510M, and raised non-GAAP EPS guidance to \$1.80-\$1.85 from \$1.69-\$1.79. And based on some preliminary 2014 guidance for an incremental \$10M in clinical trial related R&D spend, as well as some tempering of our aggressive DT estimates, we are lowering our 2014 estimates to what we now believe is a very achievable level. We reiterate our Outperform rating and \$45 price target on THOR.
	HeartMate II Strength Drives Top- and Bottom-Line Beat. THOR reported 3Q sales of \$126.4M (+7%y/y), beating estimates by ~\$5M, and EPS of \$0.49 beating us and consensus of \$0.39 and \$0.40, respectively. U.S. Destination Therapy (DT) put up strong double-digit growth - we estimate 20%, somewhat below our very aggressive estimate - while U.S. Bridge-to-transplant (BTT) performed much better than expected - down 27% vs. our -35% estimate. OUS HeartMate II sales grew 28% Y/Y, with the newly launched Japanese market adding just shy of ~20% Y/Y growth (~\$4M) on ~38 pumps in the quarter (24 commercial and 14 stocking).
	2013 Estimates Increase on Strong Performance, 2014 Estimates Adjusted for Increased R&D Spend and HVAD DT Trials. We are increasing our 2013 sales estimate to \$503.7M (+2.5%) from \$499.9M on increased HeartMate II sales, and are also increasing our 2013E EPS to \$1.83 from \$1.74 (includes a \$0.05 1x tax benefit). Looking out to 2014, we are taking down our sales and EPS due to: 1) An incremental \$10M (about \$0.11) R&D expense for HeartMate III, PHP, and REVIVEIT clinical trials; 2) The negative impact of HTWR's 240-patient DT trial on 2014 U.S. DT volumes; and 3) The 50-patient HeartMate III CE mark trial, which will cannibalize some OUS volumes. As such, we are lowering our 2014 sales estimate by \$25M to \$524.2M (+4.1%) and our 2014 EPS estimate to \$1.64 (-10.6%) from \$1.85.

²⁰⁵ Leerink Partners LLC, "Thoratec Corp., 3Q13: HeartMate II Drives Another Solid Quarter, R&D To Impact 2014," October 31, 2013.

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	Pipeline On Track. THOR continues to expect: 1) An early 2014 launch of the HeartMate III CE Mark trial; 2) An early 2014 launch of the PHP CE Mark trial in high-risk PCI; 3) Enrollment in the NIH-sponsored REVIVEIT trial in NYHA Class III transplant-ineligible patients; and 4) ROADMAP data in late 2014 comparing HeartMate II vs. medical management in less-sick heart failure patients.
	Northland Securities raised its price target to \$46 from \$42 after the Company beat its and the Street's estimates. The analyst commented that Thoratec "managed to stabilize the ship," while HeartWare faced "potentially more difficultyto gain additional share + greater scrutiny on the DT trial." Northland Securities also noted that the CMS decision was "a positive" for Thoratec: 206
	THOR reported Q3-13 numbers yesterday, with \$126.4M revs, beating Street's \$121M and our estimate \$123M. HM-II U.S. units were 737, down sequentially from 770 units in Q2 due to seasonality. International HM-II units came were 250, of which 40 came from Japan contribution. Overall, seems like market shares in the U.S. stabilized and/or improved.
	Key Points The highlight of the call was the increased size of Heartware's DT trial to 429 patients (2:1 randomized HVAD: HM-II). This translates into a further delay in U.S. DT launch of the HVAD. We talk about implications of this trial size change in our HTWR note.
	Thoratec will be embarking on its HM-III CE Mark study in early 2014, and a US pivotal trial "shortly thereafter." What this means is that HM-III would "probably" be launched in the US around the same time as the HVAD. More importantly, towards the latter half of the HVAD DT trial enrollment, the HM-III could be "competing" for patients, therefore potentially further delaying the HVAD DT trial enrollment. As we have said before, the clinician community, it seems is still is willing to give HVAD a pass on neurological events. We have remained, and still remain positively predisposed to the HeartMate-II given a "relatively" benign patient management profile.
	Heartware is scheduled to report numbers next week, and it will be interesting to see where market shares stack up, and if there has been any delay in the DT trial protocol finalization and/or enrollment. As we have said before, our analysis suggests that the HVAD is going to be delayed by roughly 2 years in the U.S.
	Thoratec's 210 OUS units (ex-Japan) essentially implies a 10% y/y growth in Europe, again due to seasonality. Not sure about the market dynamics, and we will have to wait for Heartware to report.

²⁰⁶ Northland Securities, "Thoratec Corporation (THOR), Good Outlook...Raising PT to \$46...," October 31, 2013.

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	CMS also formalized changes to its NCD for VADs, which was essentially the same as the prior proposal, with some minor changes related to excluding patients on Status 7 (patients temporarily unfit for a VAD, but could become a BTT candidate soon) from BTT consideration. The additional tweaks included letting hospitals decide on the timeline for a transplant, rather than dictating the timeframe for Tx. Net-net, the final NCD guidelines work negatively for Heartware, and should serve to tighten off-label use. Stated otherwise, it is a positive for Thoratec.
	We are maintaining our Outperform rating and upping our PT from \$42 to \$46, which represents 5x forward sales. It just seems that Thoratec has managed to stabilize the ship, and combined with potentially more difficulty for Heartware to gain additional share + greater scrutiny on the DT trial, it seems like a better time to get more constructive on Thoratec.
	Oppenheimer & Co. said the Company had "overall a solid quarter" on strength in the U.S., and noted that the CMS decision "is a positive for THOR." The analyst increased its EPS and revenue projections for 2013 and 2014: ²⁰⁷
	3Q sales of \$126.4M (+7% y/y) were solidly above our \$121.6M/Street's \$121.2M on US strength. Japan came in above and Europe slightly light of our thinking. EPS of \$0.49 (vs. our \$0.41) was meaningfully higher on solid op. margin/onetime tax benefit. THOR continues to see the US market as growing mid-teens and believes there was "relative stability" in market share sequentially vs. HTWR (reports next Thurs). THOR raised '13E guidance to \$500-505M/\$1.80-1.85. Some one-time benefits in 3Q, but overall a solid quarter. Last night, CMS' final Decision Memo on the National Coverage Decision posted and is a positive for THOR. The NCD impact, pipeline advances and Japan market development take increasing focus ahead.
	Key Points 3Q sales. Total pump units were +41 vs our estimate in the US/in-line OUS, driven by HeartMate II strength (PVAD/IVAD was slightly below). Europe was light (unclear if this is slightly lower market or higher HTWR share). Japan was again above on stocking. Pocket controller upgrades and CentriMag were ahead. Pricing WW remains stable.
	Pipeline. ROADMAP enrollment is complete/REVIVE-IT enrollment now open. Expected HeartMate III CE Mark trial start remains early '14E and US trial "shortly thereafter". PHP's pilot study was completed successfully 3Q; THOR expects CE Mark trial for high-risk PCI early '14, and US IDE submission mid-'14.

²⁰⁷ Oppenheimer & Co., Inc., "Thoratec Corp., Solid 3Q; Pipeline On-Track; CMS Finalizes NCD," October 31, 2013.

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	Tidbits on 4Q/2014. Japan stocking and pocket controller upgrades favored 3Q; contribution 4Q will be \$4M less. For '14, THOR anticipates higher R&D spend/ normalized higher annual tax rate. HTWR's additional DT trial will be a headwind, but Japan should ramp and HTWR's BTT launch anniversaries in 4Q13.
	NCD finalized. CMS' final Decision Memo closely tracks the Proposed. CMS reaffirmed its decision to restrict bridge-to-transplant patients to those active (not Status 7) on the UNOS transplant list. Our survey work suggests a shift in "gray-zone" bridge-to-decision patients to destination therapy (though will take time). This favors THOR (DT market exclusivity).
	Adjusting estimates. Our '13E sales/EPS rise \$8M/\$0.09 to \$503M/\$1.83 mainly on 3Q. For '14E, we look for \$548M sales (+9%). EPS moves to \$1.88 EPS (+3%) on higher R&D investment and higher tax rate.
	After a "solid competitive performance," Piper Jaffray reiterated its Overweight rating, and raised its price target for the Company to \$48 from \$44 "to reflect positive market share gains and the beneficial NCD": ²⁰⁸
	Conclusion Thoratec delivered another quarter of solid competitive performance with Q3 revenues of \$126.4M (+7%) vs. Street expectations of \$121.3M. We believe this performance validates our thesis that competitive share gains have largely stabilized and we see THOR poised to return to more robust growth in 2014, even factoring in the new HTWR DT trial and the anticipated THOR HMIII CE mark trial, where THOR will not be compensated for clinical devices. EPS of \$0.49 (\$0.44 adjusting for a \$0.05 tax benefit) outperformed consensus of \$0.40. Finally, as we anticipated, the final NCD language released yesterday evening is essentially unchanged from the August proposal, which we see favoring THOR. We reiterate our OW rating and raise our PT to \$48 from \$44 based on 4.7x EV/CY14 Rev (adjusted from 4.6x EV/CY13 Rev previously) to reflect positive market share gains and the beneficial NCD.
	HMII Share Stabilizing, VAD Market Appears Strong. As we have written previously, HMII US share appears stable in established centers and we believe in general HVAD share gains will be limited to new centers until the device receives a DT label. Given this dynamic, we believe THOR can continue to execute against Street expectations for the remainder of the year and can return to high single-digit growth in FY14. FY14 growth rate factors in the absorption of the loss of ~336 DT implants worth ~\$39M over the next 5 quarters from the HTWR DT supplemental cohort (286 devices) and the HMIII CE Mark trial (50 devices

²⁰⁸ Piper Jaffray, "Thoratec Corp. (THOR), Thoratec Shows Strong Competitive Performance," October 31, 2013.

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	where THOR will not be compensated in the trial setting). This is against a market backdrop that management sees growing at a mid-teens sustainable rate.
	HMIII CE Mark & US Trials Set for FY14. Management stated it is on-track to begin its ~50 patient CE Mark trial in early FY14 with a goal of completing enrollment by year end. The US trial (size not yet disclosed) is anticipated to begin shortly after the CE Mark trial. While the CE Mark trial will cannibalize THOR's EU revenue, management anticipates that both the CE and US trials will provide a halo effect for HM share. The HeartMate PHP device is also expected to start its CE Mark study in early FY14 in patients undergoing high-risk PCI. THOR expects to submit an IDE in mid-CY14 for a US study which we believe will focus on shock patients.
	Japan Launch Progresses. Four new centers implanted HMII in Q3 bringing the total number of active centers to 12. Japan revenue was slightly over \$4M in the quarter with stocking accounting for ~1/3rd of revenue or ~\$1.3M.
	Risks to Achievement of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.
	Although J.P. Morgan "view[ed] Thoratec's 3Q performance as solid, it wasn't quite as strong as the headline results suggested." Nevertheless, the analyst increased its price target to \$37 from \$35 as "VAD market growth remain[ed] healthy": ²⁰⁹
	Thoratec reported 3Q results Wednesday after the close, with total revenues of \$126.4M (+7%) coming in \$5.1M above Street consensus and \$4.7M better than our own estimate. However, this upside was almost entirely driven by inflated peripheral sales due to the pocket controller rollout, as pump volume and revenues were both roughly in line with expectations. On the bottom line, adjusted EPS of \$0.49 (flat YOY) topped consensus by \$0.09 and were \$0.02 better than our thinking. Again though, it was a one-time item that accounted for the majority of the beat, as a noncash tax benefit added \$0.05 to earnings. As a result, while we view Thoratec's 3Q performance as solid, it wasn't quite as strong as the headline results suggested.
	VAD market growth remains strong Thoratec sold 987 pumps in 3Q, flat YOY and 5 above consensus. VAD revenues of \$125.8M grew 7%, as strong Centrimag growth and peripheral sales offset further declines in the PVAD/IVAD product lines. Meanwhile, revenue per implant rose 8% YOY to more than \$127,000, also reflecting the boost from above trend accessory sales in the quarter. With the pocket controller rollout now

²⁰⁹ J.P. Morgan, "Thoratec Corp., Good But Not Great; Peripherals and Tax Rate Drive 3Q Upside," October 31, 2013.

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	largely complete, we would expect this metric to moderate going forward. HeartMate II sales rose 7% to \$112.8M, \$4M above consensus, while PVAD/IVAD revenues of \$2.6M (-32%) were essentially in line with the Street. Finally, Acute Support sales of \$10.4M (+39%) were \$600k better than consensus, as that segment continues to see solid traction.
	But share remains the bigger near-term issue, in our view. These results are encouraging and suggest that VAD market growth remains healthy. On the 3Q call, CEO Gary Burbach commented that the company expects full year market growth in the mid teens, in line with our thinking. However, we continue to view the competitive dynamics in the US as by far the more important piece of the story for Thoratec in the near term. On this front we will need to wait for Heartware's results next week to draw any firm conclusions, but we continue to believe that the market view coming out of 2Q – namely that the HVAD's momentum had stalled and share was stabilizing – will prove premature.
	Turning back to the quarter, Destination Therapy remains a bright spot. DT implants accounted for 60% of US HeartMate II units in 3Q, or 432 pumps by our math. This was up 14% YOY, as Thoratec's efforts to drive increased referral activity continue to pay off. This helped to at least partially offset an estimated 24% decline on the BTT side, where we peg unit volume at 305 pumps in the quarter.
	News stories attributed the increase in the Company's stock price to its earnings results and stronger guidance. ²¹⁰
	According to Bloomberg, following the disclosures on October 30, 2013, the average of analysts' price targets for the Company increased to \$44.75 from \$41.67, or 7.4%, and out of 15 analysts with investment ratings for the Company, one upgraded and one downgraded its rating. (<i>See</i> Exhibit 5C.)
	Remark: Given that: 1) the Company's quarterly financial results exceeded consensus expectations; 2) analysts were reassured by the Company that its market "share domestically and internationally remained relatively stable during the quarter;" and 3) the CMS decision was considered a positive for Thoratec, while a negative for competitor HeartWare, the statistically significant positive Company-specific return on October 31, 2013 is consistent with that expected in an efficient market.

²¹⁰ Dow Jones News Service, "Thoratec Surges Ahead On Growth Prospects -- Market Talk," October 31, 2013, 11:41 AM; Bloomberg, "U.S. Equity Movers: AAWW ALCS ARIA AVP CRR EXPE FLDM ICLD MMI," October 31, 2013, 10:17 AM; Seeking Alpha, "Thoratec beats by \$0.09, beats on revenues," October 30, 2013, 4:31 PM.

²¹¹ Wells Fargo Securities, LLC, "Thoratec Corp., THOR: Strong Q3 Share Relatively Stable," October 30, 2013.

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11/29/2013	After market close on Wednesday, November 27, 2013, the day before Thanksgiving, the New England Journal of Medicine (NEJM) released an article on Thoratec's HeartMate II LVAD that found elevated levels of thrombosis since early 2011. ²¹² That
	same day, the Journal of Heart and Lung Transplantation (JHLT) released a series of papers on HeartMate II including an article titled "Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) analysis of pump thrombosis in the
	HeartMate II left ventricular device," which also demonstrated a rise in thrombosis related to the HeartMate II. ²¹³
	Several news articles reported on the findings of the studies, including that researchers had "found a higher rate of dangerous blood clots in patients who received Thoratec Corp's HeartMate II heart pump than had been seen in clinical trials or prior experience." Researchers reportedly found that since March 2011, "clot formation had occurred in 8.4 percent of HeartMate II implants compared with a rate of 2.2 percent prior to that date." Further, "thrombosis was forming on average 2.7 months after implant since March 2011 compared with a median of 18.6 months prior to that date." According to lead author Dr. Randall Starling, "[t]he takeaway to me is that physicians and patients need to realize that this is a known adverse event that can occur with the pump that appears to occur more frequently than was originally recognized." A physician who was not involved in the study, Dr. Alex Reyentovich, medical director of the LVAD program at NYU Langone Medical Center in New York, said, "[w]hat's unique to this study is their reported incidence seems to be quite a bit higher than what has been reported in the mandatory registry for LVAD. It is worrisome."

²¹² The original study was posted on the website for the *New England Journal of Medicine* on November 27, 2013 (http://www.nejm.org/doi/full/10.1056/NEJMoa1313385#t=article, last accessed January 3, 2018): Starling, Randall C., et al., "Unexpected Abrupt Increase in Left Ventricular Assist Device Thrombosis," *New England Journal of Medicine*, 2014; 370:33-40.

²¹³ Available at https://www.ncbi.nlm.nih.gov/pubmed/24418730.

²¹⁴ Reuters, "UPDATE 1-Higher clot risk seen with Thoratec heart pump -study," November 27, 2013, 5:00 PM. See also, New York Times, "3-Hospital Study Links Heart Device to Blood Clots," November 27, 2013, 5:00 PM; and Bloomberg, "Thoratec's Heart Pump May Cause Blood Clots, Study Suggests," November 27, 2013, 5:37 PM.

²¹⁵ Reuters, "UPDATE 1-Higher clot risk seen with Thoratec heart pump -study," November 27, 2013, 5:00 PM.

²¹⁶ *Ibid*.

²¹⁷ *Ibid*.

²¹⁸ *Ibid*.

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	In response to the studies, the Company's CEO, Gary Burbach emailed a statement to reporters which said: "Thoratec's top priority is to serve patients with heart failure We take every potential complication seriously and work closely with clinicians to optimize all aspects of the patient experience with HeartMate II." 219
	Piper Jaffray wrote that LVAD "volumes will continue to increase as the therapy advances and the heart failure patient population continues to increase," but the "near-term risk is a breakdown in the referral curve due to the overt media attention (negative for both THOR & HTWR)": ²²⁰
	On Wednesday evening the New England Journal of Medicine (NEJM) released an article reporting elevated levels of thrombosis since early 2011 in HeartMate II (HMII) pumps (837 patients at 3 centers). On the same day the Journal of Heart and Lung Transplantation (JHLT) released a series of papers on HeartMate II within a special issue titled <i>Thombotic</i> [sic] Complications in Mechanical Circulatory Devices. While the national media has sensationalized the NEJM article we view the JHLT articles, specifically an Intermacs analysis (6,910 HMII patients at 132 centers) as much more relevant. Each of the articles resides within an ongoing clinical discussion around a small but clinically meaningful rise in thrombus rates. However, despite a resultant increase in pump exchanges in 2011 & 2012, the Intermacs analysis states "no discernible impact has occurred on overall patient survival".
	What Is The Impact? LVADs, whether for indications of bridge-to-transplant (BTT) or destination therapy (DT), are generally a therapy of necessity vs. choice. Therefore, we believe volumes will continue to increase as the therapy advances and the heart failure patient population continues to increase. However, LVAD therapy is still young and evolving with physicians on a steep learning curve. Thrombus and the potential for resultant stroke now appear to be a class problem whose cause is not entirely understood (with device design, patient selection, implant technique, post-implant monitoring and therapy, pump programming, etc. all potential contributing factors). While the media has focused on sensationalizing one journal article, we see the clinical community focusing more on working to detect potential thrombus (LDH is mentioned as a bio marker in several studies) and pursue earlier intervention (through pump exchanges). The near-term risk is a breakdown in the referral curve due to the overt media attention (negative for both THOR & HTWR), but again we see the NEJM and JHLT articles as contributing to the evolution of the therapy rather than pointing to a singular problem.

²¹⁹ See, e.g., Bloomberg, "Thoratec's Heart Pump May Cause Blood Clots, Study Suggests," November 27, 2013, 5:37 PM

²²⁰ Piper Jaffray, "NEJM & JHLT Articles Add To LVAD Thrombus Discussion," November 29, 2013.

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	JP Morgan said that it "anticipate[s] some weakness on the back of Wednesday's article," but because "there are no good alternatives for these patientswe don't expect this issue to have a material impact on market growth": ²²¹
	Wednesday after the close, the <i>New England Journal of Medicine</i> published an article entitled "Unexpected Abrupt Increase in LVAD Thrombosis," in which the authors report a significant increase in the observed rate of pump thrombosis with Thoratec's HeartMate II over time at three high-volume VAD centers. Below we walk through some quick thoughts on the article.
	While reports of a rising thrombosis rate with the HeartMate II are not new, the NEJM article is sure to elevate the discussion. We began hearing anecdotal reports of increased HeartMate II pump thrombosis from individual centers early this year, and a recent INTERMACS analysis of 6,251 VAD implants found that the event rate in that dataset increased from 2% (Apr. '08– May '11) to 5% (May '11–Sept. '12). However, given the incomplete nature of data collection in the INTERMACS registry, some clinicians believed that this event rate may actually have been understated.

	The rate of pump thrombosis increased markedly starting in early 2011, from 2.2% at 3 months post-implantation in March of that year to 8.4% by January 2013, with a similar pattern observed at all three sites. Meanwhile, the median time from pump implantation to confirmed thrombosis fell from 18.6 months to just 2.7, suggesting an elevated risk in the early post-procedure time period. Of the 72 confirmed cases, 11 underwent emergency heart transplant, 21 resulted in a pump exchange, and the remaining 40 were managed medically. The mortality rate for patients who suffered a thrombotic event was materially higher than for those who didn't at all time points, although we would note that this was driven almost entirely by the group of medically managed patients.

	The causes of this increase are unclear. According to the authors, implant techniques at these sites did not change during the course of the study and there was no correlation between the implanting surgeon and event rates. For its part, Thoratec is adamant that no changes in device design were to blame. Rather, the company believes that the issue may come down to patient selection and points out that many other high-volume sites

 $^{^{221} \} JP \ Morgan, "NEJM \ Article \ Raises \ Noise \ Level \ Around \ HM2, Tilts \ Competitive \ Landscape \ More in \ HTWR's \ Favor," \ November \ 29, 2013.$

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	have reported much lower event rates. Meanwhile, although its own internal database does point to an increase in the overall rate of thrombotic events over time, Thoratec believes that the event rate has now stabilized and is not continuing to increase as the article suggests.
	These results may suggest that Thoratec pushed the envelope in its efforts to minimize anticoagulation requirements with the HeartMate II. As we've talked about many times in the past, all VADs are not created equal and each has its own unique set of tolerances. In the case of the HeartMate II, a high bleeding rate and relatively low observed risk of thromboembolic events in the early clinical trials encouraged many sites to scale back on their anticoagulation regimens. Thoratec largely embraced this trend and recently completed enrollment in the TRACE study designed to evaluate HeartMate II outcomes with reduced anticoagulation in a formal clinical trial setting. This perceived strength (lower AC requirements) took on added importance as a marketing tool when concerns were raised about higher rates of thromboembolic events with Heartware's HVAD which eventually led that company to recommend higher anticoagulation with its pump. Interestingly, this issue with the HVAD first came to light at the ISHLT meeting in April 2011, almost the exact same as the inflection point that was seen in HeartMate II event rates in both the INTERMACS (May 2011) and NEJM article (March 2011) datasets. In the appendix to Wednesday's article, the authors reveal that INR protocol at their sites was reduced from 2.0-2.5 (2004-2008) to 1.5-2.0 (2009-2011) before being ratcheted back up again to 2.0-3.0 (2012-present), although they did not find any direct correlation between these changes and the increased event rates.
	What does all this mean for the VAD market and its competitive landscape? First, media reports about heart pumps causing blood clots certainly don't help market development and will likely result in energy that would have been spent building referral pathways being devoted instead to hand holding as patients have second thoughts about the therapy. In the end, however, the fact remains that there are no good alternatives for these patients and mechanical circulatory support is still a far better option than medical management. As a result, we don't expect this issue to have a material impact on market growth. It will, however, be something to keep an eye on.
	From a competitive standpoint, we see this issue as a negative for THOR as it tries to defend against further Heartware share gains. Until now, Thoratec has stressed the low thromboembolic event rate and reduced anticoagulation requirements of the HeartMate II as key advantages of its system over the HVAD. Wednesday's article, combined with the INTERMACS analysis, suggest that the HeartMate II's tolerances may be narrower than previously thought. While this doesn't make it a bad pump or negate the strong long-term patient outcomes it has demonstrated, it does put Thoratec in a more difficult position as it tries to market

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	against the HVAD, particularly if Heartware shows an improvement in its own event rates when the BTT post-approval results are presented at ISHLT in April. For our part, we continue to expect Heartware to gain incremental share in the US as we move through 2014, on its way to an eventual 50/50 split of the market. While Thoratec's own top-line growth should accelerate as it anniversaries the toughest comps from the HVAD launch, we see this as more than baked into the stock at current levels. As a result, while we anticipate some weakness on the back of Wednesday's article, we would not necessarily view a pullback as an attractive buying opportunity and we maintain our Neutral rating.
	Canaccord Genuity said it "would not be surprised to see weakness in THOR" in the short term, but it did not expect "these findings [to] change the competitive landscape in this duopoly" with HeartWare: ²²²
	The New England Journal of Medicine (NEJM) and Journal of Heart & Lung Transplantation (JHLT) both published manuscripts online just before the Thanksgiving holiday that highlighted an increase in the frequency of device exchanges related to thrombus occurring with HeartMate II devices from Thoratec (THOR: NASDAQ: \$42.12 BUY)
	Key takeaways We have read both manuscripts thoroughly, and our initial thought is "we are not surprised." Investors who have followed our research on LVADs over the past few years may recall that we reported on a perceived increase in HM2 device exchanges via thrombus approximately two years ago. Interestingly, the time period at which the NEJM authors concluded an increase in device exchanges began to occur (i.e. 2011) corresponds with our reports. We recommend investors review these manuscripts for context, but we will refrain from transcribing them in mundane detail. In sum, NEJM authors concluded "[t]he rate of pump thrombosis related to the use of the HeartMate II has been increasing at our centers [3 in total: Cleveland Clinic, Barnes Jewish and Duke] and is associated with substantial morbidity and mortality." We perceived a slightly more forgiving tone from the JHLT authors (a few of whom were also authors on the NEJM paper): "Pump exchange or death due to pump thrombosis has increased during 2011 and 2012, but the magnitude of the increase remains relatively small. Survival remains high (80% at 1 year) with the HMII LVAD" The INTERMACS patient cohort was larger given it is a national registry, but we note it is subject to voluntary reporting. Meanwhile, the NEJM subset encompasses the total experience from these three high-volume centers from 2004 through mid-2013. What's more, the NEJM statistical analysis benefited from access to more thorough patient data.

²²² Canaccord Genuity, "Journal Manuscripts Examine Thor Device Thrombosis Rates," November 29, 2013.

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	What does this mean to the companies and stocks of Thoratec and HeartWare (HTWR NASDAQ: \$93.51) – both BUY rated? As for the stocks – given the tendency to sensitivity and volatility to news in LVAD land, near-term – we would not be surprised to see weakness in THOR and strength in HTWR. As for the companies – and more specifically the question of whether these findings change the competitive landscape in this duopoly – we would say probably not. That said, our opinion has typically been more aggressive than consensus (buy- or sell-side) with respect to the propensity for HTWR share gain in the US over the next few years. We do think these findings will at least somewhat offset the negative view of HTWR in some investors' minds as a result of the higher stroke rates reported in the IFUs for HeartWare's HVAD upon the FDA approval in November 2012.
	Overall, we would submit a few overarching observations based on all of our research and conversations with KOLs, coupled with these, most recent manuscripts: 1) the totality of data on both of these devices (HM2 and HVAD) suggest they are both excellent solutions for end-stage heart failure patients in need of LV support relative to the alternatives, of which there are virtually none (save for transplantation); 2) there may be a delicate balance surgeons attempt to achieve with the titration of anti-coagulation therapy (a.k.a. INR level) employed in each patient between the risks of stroke, bleeding and thrombosis, and often times movement one way (e.g., down) may result in an increase in a certain risk factor (e.g., thrombosis).
	Bottom line: We continue to espouse an "Own Both" strategy (HTWR and THOR), while we also continue to recommend an overweight position in HTWR for four primary reasons: 1) overall VAD market growth is significantly higher than med-tech average, 2) on a relative basis we believe the "VAD ETF" is under-valued relative to other med-tech sectors, 3) uncertainties associated with both companies' pipelines and clinical outcomes (these manuscripts support this), and 4) our belief both companies could be attractive M&A targets some time over the next 2-3 years.
	Northland Capital Markets stated that while "elevated thrombus rates with the HM-II since 2012 [are] not new by any stretch" the latest study "has elevated the discussion": ²²³
	An article in the NEJM highlighting elevated thrombus rates with the HM-II personifies the two battlefronts Thoratec is dealing with (and in our opinion not very effectively). The first is the thrombus FMEA root cause analysis. The second is the messaging battlefront, where frankly speaking, Thoratec has been outmaneuvered and outflanked by Heartware, in our view. The message of equivalency created between the HM-II and HVAD is an interesting argument to parse through with existing data.

²²³ Northland Capital Markets, "Thrombosis Controversy Dogs HM-II...," December 2, 2013.

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	Key Points The issue of elevated thrombus rates with the HM-II since 2012 is not new by any stretch. The NEJM article depicting thrombus rates of 8.4% with the HeartMate- II has elevated the discussion.
	Another study published by Kirklin et. al evaluating data from 6,910 HeartMate- II patients from the INTERMACS registry paints a more benign picture of thrombosis rates being around 5%. However, we caution against a sense of complacency using this article. Ultimately, in our opinion, it seems that complacency has led to this state wherein the "workhorse" status of the HM-II pre-2012 has been lost and this issue has not been resolved yet.
	While Thoratec has implemented changes to the outflow grafts, it is unclear if the thrombus issue has been resolved in the field completely, especially with the wide std. devs. across hospitals.
	As is true with any technology, clinical experience gets refined over time. The new journal articles in the NEJM, along with a bunch of papers in the JHLT present a theory of hemolysis due to higher shear stresses. This then leads to elevated lactate dehydrogenase (LDH) levels, which ultimately seem to manifest in pump thrombosis. The papers also point to conditions wherein HM-II patients had chronically lower INR levels (<1.4), which could lead to thrombosis. Maybe monitoring LDH will now be factored into guidelines especially in the first 2 - 4 months after pump implant.
	While we don't want to appear as jumping to conclusions here, we cannot help but think the HVAD has tighter clearances and is more sensitive to afterload and preload than the HM-II. If in fact hemolysis due to excessive shear leads to higher thrombosis, then we don't understand how the HVAD would not result in higher hemolysis rates, higher LDH levels, and hence higher thrombosis rates at the same anticoagulation levels. While we understand the rationale to create a message of equivalency between the two pumps, what we find fascinating is that the HM-II continues to be the subject of independent review—both good and bad. HVAD, on the other hand, so far, has not been subject to "independent" review. We wonder how the HVAD would stand up to "true" scrutiny.
	Investors need to put all the past issues with the HVAD, namely, the BTT panel, interim DT data, changing causations about higher neurological events, supplemental DT trial, Bad Oeynhausen data, etc, within the context of equivalency.

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	News articles attributed the Company's stock price decline on November 29, 2013 to the findings of the NEJM and JHLT studies on Thoratec's HeartMate II LVAD. 224
	According to Bloomberg, following the disclosures on November 27, 2013, the average of analysts' price targets for the Company was unchanged at \$44.92, and one out of 15 analysts with investment ratings for the Company increased its rating. (<i>See</i> Exhibit 5C.)
	Remark: Given that the NEJM and JHLT studies found that the rate of device thrombosis among patients who received Thoratec's HeartMate II LVAD had unexpectedly increased since early 2011, which analysts viewed "as a negative for THOR," potentially causing a "breakdown in the referral curve" and "weakness" in the Company's share price, the statistically significant negative Company-specific return on November 29, 2013 is consistent with that expected in an efficient market.
2/5/2014	After market close on February 4, 2014, Thoratec released its fourth-quarter 2013 financial results. ²²⁸ For the quarter, the Company reported revenues of \$128.2 million, GAAP income of \$13.1 million, or \$0.23 per share, and non-GAAP net income of \$22.1 million, or \$0.38 per share. This compared to analysts' consensus of \$128.4 million in revenue and non-GAAP EPS of \$0.41. ²²⁹ The Company stated in its press release: ²³⁰
	"We were pleased with our financial performance for the fourth quarter and full year, supported by robust growth in the worldwide market for mechanical circulatory support therapy and our successful launch of

²²⁴ See, e.g., Dow Jones Institutional News, "Thoratec Falls Premarket Amid Heart Device Concern -- Market Talk," November 29, 2013, 8:41 AM; Theflyonthewall.com, "On The Fly: Pre-market Movers," November 29, 2013; Investor's Business Daily, "Stocks Open In Upward Drift; Thoratec Tanks On Study Results," November 29, 2013; Associated Press Newswires, "Thoratec falls after study says rate of blood clots in HeartMate II patients is increasing," November 29, 2013, 9:12 AM; Seeking Alpha, "Sunshine Heart rallies as Thoratec falls," November 29, 2013, 8:35 AM.

²²⁵ JP Morgan, "NEJM Article Raises Noise Level Around HM2, Tilts Competitive Landscape More in HTWR's Favor," November 29, 2013.

²²⁶ Piper Jaffray, "NEJM & JHLT Articles Add To LVAD Thrombus Discussion," November 29, 2013.

²²⁷ Canaccord Genuity, "Journal Manuscripts Examine Thor Device Thrombosis Rates," November 29, 2013; JP Morgan, "NEJM Article Raises Noise Level Around HM2, Tilts Competitive Landscape More in HTWR's Favor," November 29, 2013.

²²⁸ PR Newswire, "Thoratec(R) Reports Fourth Quarter Results," February 4, 2014, 4:02 PM.

²²⁹ Bloomberg, "*THORATEC 4Q ADJ. EPS 38C, EST. 41C," February 4, 2014, 4:02 PM.

²³⁰ PR Newswire, "Thoratec(R) Reports Fourth Quarter Results," February 4, 2014, 4:02 PM.

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	HeartMate II in Japan," said Gary F. Burbach, President and Chief Executive Officer. "Our progress in 2013 in terms of product and market development positions Thoratec well to continue advancing the field of MCS," he added.

	"We expect 2014 will be an eventful year for Thoratec as we launch clinical studies of next generation chronic LVAD technology with HeartMate III, and for the percutaneous acute care market with HeartMate PHP," Burbach commented. "Our 2014 guidance projects revenue growth for Thoratec that should create a foundation for acceleration in future years as we realize the potential of our exciting pipeline programs."
	The Company issued guidance for 2014, stating that it expected revenue to be in the range of \$520–\$535 million; GAAP net income to be in the range of \$1.28–\$1.38 per share; and non-GAAP net income to be in the range of \$1.72–\$1.82 per share. ²³¹
	The Company held a conference call with analysts later that day. ²³²
	Leerink Partners wrote that the Company quarterly results were "basically in-line," while guidance was "not surprisingly" below consensus expectations. The analyst reiterated its Outperform rating and price target for the Company, and commented that the lower-than-expected guidance was "already well-reflected in [the] current valuation:"
	Bottom Line: THOR delivered a basically in-line 4Q13 but not surprisingly issued sales guidance with the midpoint of the range ~\$6.5M below the Street. With the stock off over 10% since early December, we believe this is already well-reflected in current valuation. THOR did deliver solid HeartMate II sales of \$113.0M (+2%) vs. consensus at \$110.8M, with strong U.S. volumes largely driven by Destination Therapy (DT) offsetting weaker international volumes off a particularly tough y/y comparable. We view 2014 as another transition year during which we expect THOR will manage through a number of transient headwinds while core underlying LVAD market growth continues to grow at a double-digit clip. And investor focus is likely to increasingly shift toward the pipeline, with THOR providing encouraging commentary on timing for not only first-in-man for its next-gen HeartMate III but also CE Mark approval (2015) and U.S.pivotal trial initiation (2H14). We continue to rate THOR shares OP with a \$45 12-month price target.

²³¹ *Ibid*.

²³² CQ FD Disclosure, "Q4 2013 Thoratec Corporation Earnings Conference Call - Final," February 4, 2014.

²³³ Leerink Partners LLC, "Thoratec Corp., 2014 Outlook: A Transition Year as Focus Shifts to Clinical Milestones," February 4, 2014.

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	Strong Underlying Growth Trends Intact Despite Near-Term Headwinds. We remain bullish on the long-term LVAD market opportunity broadly and THOR in particular as the current market leader we project low-teens WW market growth over the 2013-2017 timeframe. But in 2014, THOR faces multiple "one-time" headwinds, including: (1) the negative top-line impact of HTWR's (OP) 286-patient DT trial on 2014E U.S. DT volumes we estimate a 210-unit impact worth ~\$25M; (2) the 50-patient HeartMate III CE mark trial, which will cannibalize some OUS volumes without generating revenue; and (3) difficult y/y Japan comparisons.
	2014 All About the Pipeline. THOR's next-gen LVAD HeartMate III remains on track for first-in-man in 1H14. More importantly, the company expects CE Mark approval and launch in 2015. And in the U.S., THOR will initiate a non-inferiority study vs. the current-gen HeartMate II in 2H14 with two trial arms one for short term and one for long term with no real designation between Bridge-to-Transplant (BTT) and DT. While official data for HeartMate III aren't likely until early 2015, the trial will generate significant "buzz" within the relatively tight-knit cardiothoracic surgeon community as physicians gain early experience with the device.
	Estimate Changes. Our 2014 and 2015 sales estimates move higher on firmer ASP pricing and an extra selling week in 4Q14, which will add ~100bps to overall growth to \$528.3M (+5%) and \$622.2M (+18%) from \$522M and \$589M. This is in line with 2014 sales guidance of \$520M- \$535M. Our 2014 and 2015 adjusted EPS also move higher on lower opex spending to \$1.76 (-2.2%) and \$2.30 (+31.1%) from \$1.71 and \$2.16, respectively.
	Wells Fargo Securities said that, although the its quarterly sales were \$0.2 million below consensus, the Company had regained some market share from HTWR. The analyst lowered its 2014 estimates but commented that the Company's "2014 guidance seem[ed] reasonable": ²³⁴
	Summary. THOR reported Q4 2013 sales of \$128.2MM which was \$2.0MM below our estimate and \$0.2MM below consensus. The miss versus our estimate was driven by (1) slightly lower HeartMate II sales than we modeled and (2) slightly lower Centrimag sales than we modeled. We estimate the worldwide LVAD market grew about 11% in Q4, down from 24% in Q3. We estimate THOR regained approximately 300bps of U.S. share from HTWR in Q4 (excluding stocking). In 2014, THOR expects strong double-digit global LVAD market growth but lower growth compared to 2013. THOR provided 2014 sales guidance of \$520-535MM

²³⁴ Wells Fargo Securities, LLC, "Thoratec Corp., THOR: Q4 In Line--Share Appears Stable," February 4, 2014.

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	(+3-6%) which is slightly below consensus of \$536MM and 2014 adjusted EPS guidance of \$1.72-1.82 (-5% to -1%) which is below consensus of \$1.86. THOR expects stronger revenue growth in the back half of 2014 compared to H1 due to some potential softness from the recent New England Journal of Medicine (NEJM) publication on pump thrombosis with THOR's HeartMate II. We lower our 2014 sales estimates by \$15.5MM to \$524.2MM and lower our 2014 EPS estimate by \$0.06 to \$1.74. We estimate 2015 sales of \$587.2MM and EPS \$2.08.
	Global market growth slowed in Q4. We estimate the worldwide LVAD market grew about 11% in Q4 2013 (excluding stocking) after growing about 24% in Q3 2013. The U.S. market grew about 7% in Q4 which represents a sequential deceleration from 21% in Q3 2013. We estimate OUS market growth of 17% in Q4 which represents a sequential deceleration from robust 30% growth in Q3 2013. THOR indicated that there was an immaterial impact in Q4 from the recently published thrombosis data, but cautioned that reaction from the referral community could be delayed until early 2014 when the NEJM paper came out in the print version. THOR expects the global LVAD market to grow at a strong double-digit rate in 2014, down slightly from the mid to high teens rate in 2013. We estimate global LVAD market growth of 12% in 2014.
	THOR appears to have regained share from HTWR. We estimate THOR gained about +300bps of share sequentially in the U.S. from HTWR in Q4, increasing its worldwide market share from 63.1% to 65%. THOR added 7 new HMII centers OUS during Q4 reaching a total of 365 centers by the end of 2013. In Japan, THOR added two centers bringing the total to 14 implanting centers. Management noted that the implant rate in Japan is approaching a run rate of 100 per year. THOR also recently received approval for HMII in Argentina and expects approval in Brazil in 2014.
	Pipeline on track for 2014. THOR expects to begin CE Mark trials for HeartMate III and HeartMate PHP in H1 2014 and targets commercialization for both products in Europe in 2015. Management indicated that HMIII remains on schedule and is undergoing final pre-clinical testing, with European trial site training set to begin this month. U.S. trial for HMIII is planned for H2 2014 in a non-inferiority study vs. HMII using a single study design to secure approvals for long- and short-term use. THOR also plans to begin a CE Mark study of HM PHP acute percutaneous support system in Q2 2014 and the U.S. investigational device exemption (IDE) study in late 2014.
	2014 guidance seems reasonable. THOR provided 2014 sales guidance of \$520-535MM (+3-6%) which is slightly below consensus of \$536MM and 2014 adjusted EPS guidance of \$1.72-1.82 (-5% to -1%) which is below consensus of \$1.86. THOR has historically guided conservatively. While THOR does not provide quarterly guidance, it indicated it expects a stronger H2 2014 versus H1 due to uncertain impact of recent

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	NEJM publication on thrombosis data and competition from HTWR's HVAD trial in destination therapy (DT). We lower our 2014 sales estimates by \$15.5MM to \$524.2MM and lower our 2014 EPS estimate by \$0.04 to \$1.74.
	Valuation Range: \$45.00 to \$46.00 Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of 4.0x our 2015E sales. Risks to our thesis include worse-than-expected HMII uptake and competitors gaining more share than we model.
	Investment Thesis: We expect THOR to be the benficiary [sic] of slower-than-expected uptake of HTWR's HVAD and increased risk to HTWR receiving destination therapy (DT) approval.
	Barclays wrote that the Company's quarterly revenues were in line with expectations, and "2014 outlook came roughly in line with lowered expectations." The analysts added that "[a]t this stage we think investors are more concerned with market growth and revenue growth than profitability and given recent noise around thrombosis:" ²³⁵
	MATT'S MINDSET: THOR reported 4Q13 results that came in line with our and consensus expectations on the top line ~\$128 MM (flat) and EPS were \$0.03 below, impacted by higher-than-expected charges for warranty and excess inventory. HMII units declined ~2% in the 4Q13 including ~7% growth internationally offset by a decline in the US. International growth was driven by Japan where THOR now has 14 active centers.
	Due to well-understood headwinds in 2014 on HMII volumes (HMIII trial volumes in the EU, HTWR DT trial volumes in the US) and OpX spending on trials (HMIII, DuraHeart, PHP) and market development, we note that expectations for THOR's 2014 guidance were low. Given that backdrop, we think THOR's 2014 outlook came roughly in line with lowered expectations as revenue bracketed the Street near the high end (\$520-\$535 MM vs. cons \$533 MM) and the EPS range \$1.72-\$1.82 were slightly below the consensus of \$1.86. At this stage we think investors are more concerned with market growth and revenue growth than profitability and given recent noise around thrombosis, there was a focus on the call regarding the potential for market growth and share to be impacted due to clinical concerns. Thus far, THOR has not seen any meaningful impact on volumes from either the NCD decision in November or the NEJM publication on higher thrombosis rates. Despite this, it noted an element of caution in the guidance that contemplates 'some level' of market softness during the 1H14 (THOR noted to high single digit WW LVAD market growth in the 1H14 and double digit in the 2H14 was 'reasonable').

²³⁵ Barclays, "Thoratec Corp., Guidance Cautious on Thrombosis," February 5, 2014.

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	We continue to be bullish on the long-term prospects for the LVAD market and expect the market to grow faster and THOR to retain more market share than the Street is expecting. In the near term, we expect THOR to trade sideways with potential positive catalysts from ISHLT (thrombosis data) and 1Q EPS. We continue to recommend shares based on our view of LVAD market growth and potential size, THOR's assets, and valuation.
	Canaccord Genuity "remain[ed] bullish about the near- and long-term growth profile of the LVAD market," but cautioned that it "expect[ed] THOR to face another competitively challenging year in the US in 2014" as HeartWare continued to ramp up. The analyst lowered its price target for the Company to \$40 from \$45: ²³⁶
	Investment recommendation We remain bullish about the near- and long-term growth profile of the LVAD market, which grew 15% globally in 2013. We estimate this duopoly - THOR and HTWR - now represents a \$670M WW market, which is on track to approach our \$1 billion 2017E (+12% CAGR, which could prove conservative, in our view). The low penetration level of the patient population (10%E in US/Europe; <5%E in Japan), increasing referral patterns, new center development and next-generation technology coming down the pipe form the basis of our bullish macro perspective on VADs.
	We continue to favour Heartware (HTWR: NASDAQ: \$95.07 BUY), but also believe owning the "VAD ETF" (both) is a valid strategy to play the market growth and potential for M&A, while mitigating risk associated with uncertainties around each company's upcoming clinical trials and pipeline. We expect THOR to face another competitively challenging year in the US in 2014 as HTWR enrolls its DT revised-protocol study and commences MVAD trials, but we are optimistic about the potential for THOR's HM3 (on track to begin trials in Europe & US in '14) and longer term in the acute HF market with HM-PHP (not in our estimates). We adjust our target from \$45 to \$40 on a lower target multiple (4x EV) applied to a virtually unchanged 2015 revenue target.
	Investment highlights Q4 WW sales (\$128M; +7%) were in line (CGe: \$130M; consensus: \$128M) as US VAD revenue beat our estimates, offset by OUS VAD revenue, which missed. Reported pro forma EPS of \$0.38 missed our \$0.41E, but excluding a one-time inventory adjustment (-8 cents), EPS beat, as pro-forma GM (72%), OpEx control, and share buyback drove a solid P&L in Q4.

²³⁶ Canaccord Genuity, "Puts & Takes In Q4; Maintain Buy, Target To \$40 From \$45," February 5, 2014.

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	2014 revenue guidance (\$520-535M) bracketed our estimate/consensus (\$529M/\$535M), while EPS guidance (\$1.72-\$1.82) was slightly below our estimate (\$1.88) as the company plans to re-invest improving GM (71%E) back into R&D.
	Credit Suisse wrote that sales and earnings were short of expectations, but guidance "may prove conservative, as it assumes slower market growth in 1H14 related to the recent NEJM article on increasing thrombus rates with HMII, though THOR acknowledged not seeing a slowdown yet": ²³⁷
	4Q13 GM Light; 2014 Guidance a Bit Light of Consensus, but May Be Conservative: THOR reported 4Q13 revs/EPS of \$128.2M (-1.0% CC)/ \$0.38 vs. our estimates of \$129.0M (-0.5% CC)/\$0.42, consensus of \$128.5M/\$0.41, & implied guidance of \$125-130M/\$0.38-0.43. US pump sales were in line with consensus while OUS pumps were light, with the EPS miss from lower-than-expected GM related to higher warranty expense & sales reserves associated with the pocket pump controller upgrade. THOR provided 2014 guidance for sales/EPS of \$520-\$535M/\$1.72-\$1.82 just below consensus of \$536M/\$1.86. We're adjusting our FY14 estimates to \$535M (6.0% CC)/\$1.82 from \$534M (5.8% CC)/\$1.84 on slightly higher operating expense assumptions. 2014 guidance may prove conservative, as it assumes slower market growth in 1H14 related to the recent NEJM article on increasing thrombus rates with HMII, though THOR acknowledged not seeing a slowdown yet. THOR highlighted that new, (better) thrombus rate data should be at ISHLT in April, which could allay referrer concerns.
	LVAD Markets Slowed in 4Q, but We See Market as Healthy: Based on THOR & HTWR's results, we estimate US/OUS ex-Japan LVAD volumes grew 11%/7% in 4Q13 down from 21%/13% in 3Q13 (all exstocking, but including PVAD/IVAD), though we're not concerned about overall market strength, given the lumpiness generally associated with LVAD sales. Consistent with our view post-HTWR's preannouncement, THOR's results are suggestive of sequential BTT share gains in the US in 4Q, which suggests HTWR's BTT share (nearly 40%) is approaching equilibrium.
	Thoughts on the Stock: We think THOR can grow sales ~9% 2013-18 despite HTWR's US share gains. Our estimates assume steady LVAD share OUS-ex-Japan, ~15% WW market unit growth (including ~\$20M/year in sales in Japan by 2018) & ~\$30M/year in PHP sales by 2018, helping to offset HTWR's US share gains.

²³⁷ Credit Suisse, "Thoratec Corp. (THOR), 4Q GM Light; FY14 Guidance Conservative," February 4, 2014.

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·	Northland Securities maintained its price target and rating, noting that the Company's quarterly revenues were "in line with consensus," although a "tad lower" than its estimate. The analyst wrote that "Thoratec market shares improved in the US and OUS" as the Company "has managed to stabilize the ship." Northland Securities also opined that the Company's guidance for 2014 "seem[ed] conservative": ²³⁸
	Summary THOR reported Q4-13 numbers yesterday, with \$128.2M revs, in line with consensus estimates of \$128M and tad lower than our estimate of \$129M. HM-II U.S. units were 758, up sequentially from 737 units in Q3. International HM-II units came were 262, of which 25 came from Japan contribution. Overall, seems like market shares in the U.S. & in Europe improved.
	Key Points As is well known, Heartware pre-announced numbers in early January, with revs @ \$53M missing consensus estimates of \$59M. Heartware reports numbers later in February, and we guesstimate that the US / OUS unit contribution around 260 each. Assuming these numbers are approximately close to what the company will report, it seems that Thoratec market shares improved in the US and OUS.
	Thoratec will be embarking on training clinicians in Europe for its 50-patient CE mark study for HM-III in February. The U.S. pivotal study will be a non-inferiority study comparing HM-III to HM-II and be a hybrid BTT / DT study. Not many details beyond that were provided. As we have said before, based on the current timelines, it seems that the HM-III and HVAD will be in the US in a commercial launch mode probably within 6-months of each other. The PHP device will also be undergoing a CE-mark study in high-risk PCI, with a US study based on cardiogenic shock.
	New studies highlighting favorable thrombosis profiles with the HM-II to be presented at ISHLT in April. Company indicated that based on its internal assessment, thrombosis rates from 2012 onwards had stabilized, however it was diligently working to lower the rates. More importantly, the company is factoring in some "pause" in the marketplace from the NEJM article and has appropriately factored that into FY14 guidance, which was established @ \$520 - \$535M.
	Thoratec's 238 OUS units (ex-Japan) essentially implies a (6)% y/y growth in Europe. Not sure about the market dynamics, and we will have to wait for Heartware to report.

²³⁸ Northland Securities, "Thoratec Corporations (THOR), In-line Q4-13....FY14 guidance seems conservative...," February 5, 2014.

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	It is unclear currently if the NCD on VAD therapies finalized in November of last year had an impact on HVAD implants. Once again, we will have to wait for Heartware to report in a couple of weeks.
	We are maintaining our Outperform rating and our PT of \$46, which represents 5x forward sales. We are introducing our FY15 estimates with revs @ \$566M and GAAP EPS @ \$1.44. It just seems that Thoratec has managed to stabilize the ship, and the pending trials of HM-III could provide interesting fodder for the new year.
	Oppenheimer & Co. said the Company's quarterly sales results were in line, and guidance was "light," but this was no surprise as "THOR tends to start the year in a conservative posture." The analyst "tweak[ed] down" sales and EPS estimates for 2014: ²³⁹
	Summary Fourth-quarter sales of \$128.2M (flat y/y) were in line with us/the Street. Higher US HeartMate II sales were offset by slightly lower PVAD/IVAD and CentriMag. EPS of \$0.38 (vs. our \$0.41) was below on a transitory charge to GM. The midpoint of '14 guidance is light (especially considering 4Q14's extra selling days). While the impact of the recent NEJM article has been immaterial, mgmt is conservatively building in a modest impact on the market into its 1H14 guidance. As we've written previously, we're not surprised as THOR tends to start the year in a conservative posture. At current valuation, we see risk/reward on NEJM noise as favorable. Our focus is on continued solid market growth and expected increased pipeline visibility ahead.
	Key Points Fourth-quarter sales. Total pump units were +21 vs our most recent estimate in the US/-5 OUS. PVAD/IVAD were slightly below. Europe/Japan HM implants were in line. Pocket controller upgrades/stocking benefit declined 4Q and will be minimal ahead. CentriMag revenue declined (lower capital purchases revs), though volumes remain solid. Pricing WW remains stable.
	U.S. market growth was ~13% vs our initial expectation of high-teens, with fewer HVAD destination therapy trial implants and the November lull HTWR noted in its results the primary deltas. THOR's U.S. market share was up sequentially by ~2pts. Full-year U.S. market was +15%, an acceleration from 13.5% in '12.
	NEJM thoughts. While 4Q NEJM impact was "immaterial" and early 1Q appears to be the same, THOR is conservatively embedding potential for modest market slowdown in cardiologist referrals in 1H. As a

²³⁹ Oppenheimer & Co., Inc., "Thoratec Corp., 4Q in Line; Sets '14 Slightly Below," February 5, 2014.

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	reminder, our 1/31 survey suggests minimal impact on-the-ground at this point on HMII views and overall referrals.
	'14 guidance of \$520-530M (includes ~1pt growth benefit from 4Q14's extra selling days) is light vs our \$530.6M. Mgmt assumes WW market growth slightly below 2013's, with a "notably stronger 2H" on potential 1H NEJM softness. BTT share assumed relatively consistent with 2H, while HTWR's DT trial is a headwind.
	Adjusting estimates. Our '14E sales tweak down to \$528M from \$530.6M on slightly more conservative HeartMate II implants in 1H and greater PVAD deceleration. EPS moves to \$1.76 on the lower sales. For '15E, we look for \$582.9M sales (+10% y/y)/\$2.08 EPS (+19%).
	Piper Jaffray said revenues "were basically in line," while guidance was "appropriately conservative." The analyst maintained its price target and Overweight rating for the Company: ²⁴⁰
	Conclusion After numerous investor conversations, we felt coming into the call that given the recent pull back in THOR shares if FY14 revenue guidance touched consensus at the high end of the range and if EPS guidance (given an expectation of increased clinical spend) was also near consensus, guidance would be deemed "appropriately conservative" and THOR shares could work out of the print. This is exactly what happened with FY14 revenue guidance of \$520-535M (consensus was \$535.7M) and Adj. EPS guidance of \$1.72-1.82 (consensus was \$1.86). While revenue guidance for FY14 is not robust at ~3-6% vs. expected low-teens market growth, the majority of the 286 HVAD implants in HTWR's new US DT trial and THOR's 50 patient HMIII CE Mark trial are coming out of THOR's FY14 potential revenue. Assuming ~300 patients that's \$30-35M in "lost" revenue that should return in FY15, in addition to an EU HMIII launch.
	Q4 Revenues In-Line But No NCD Benefit. Thoratec posted Q4 results of \$128.2M in revenue and \$0.38 in Adj. EPS vs consensus expectations of \$128.5M and \$0.41, respectively. While revenues were basically in line, we believe there was an expectation of \$2-3M in upside given HTWR's earlier comments on a November disruption in their business due to the November implementation of the National Coverage Decision (NCD).
	Expectations For FY14 Market Growth Tempered. Management stated expectations for a potential slowdown in VAD market growth in FY14 due to the media surrounding November journal articles highlighting

²⁴⁰ Piper Jaffray, "Thoratec Corp. (THOR), Thoughts On Q4," February 5, 2014.

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	thrombus issues with HMII – thrombus now being a class issue. Guidance is predicated on a several point slowdown in market volumes weighted to 1H14 with a reacceleration back to near normal trendline growth exiting the year. The conservatism is tied in part to a potential lagged impact on referral trends in combination with the recent print publication of the NEJM article at the center of the thrombus discussion. The discussion may begin to be resolved in April with planned data releases and presentations at ISHLT. We note this outlook mirrors our recent physician conversations which point to an expectation of a slowdown in referrals but no evidence yet of such an event.
	Reiterate OW And \$48 PT. We are maintaining our \$48 PT but decreasing our multiple to 4.2x and rolling forward to CY15E Revs of \$589.5M (4.7x EV/CY14 Rev prior) to reflect uncertainty associated with competitive pressures.
	Risks to Achievement of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.
	J.P Morgan "view[ed] the company's overall 4Q performance as somewhat disappointing" given the quarterly struggles of HeartWare, and that guidance "reflect[ed] ongoing competitive pressure" and "some conservatism around potential fallout from the recent journal articles discussing elevated thrombosis rates with the HeartMate II": ²⁴¹
	Thoratec reported 4Q results Tuesday after the close, with sales of \$128.2M (-1% cc) coming in \$400k below Street consensus. On the bottom line, adjusted EPS of \$0.38 (flat YOY) were \$0.03 shy of consensus, as a weak gross margin weighed on profitability. While one-time charges related to warranty expenses and inventory obsolescence accounted for much of this margin shortfall, we still view the company's overall 4Q performance as somewhat disappointing and a missed opportunity given Heartware's own struggles in the quarter. Meanwhile, Thoratec's initial 2014 guidance came in below consensus on both the top and bottom lines (after accounting for an extra selling week in the year), reflecting ongoing competitive pressures and some conservatism around potential fallout from the recent journal articles discussing elevated thrombosis rates with the HeartMate II. Below we walk through our thoughts on the quarter and the 2014 outlook.
	Heartware's pain wasn't THOR's gain in 4Q. Thoratec's soft fourth quarter showing was even more surprising given the expectation held by many investors coming into the week that the company would have benefitted from Heartware's own weak 4Q performance. At the J.P. Morgan Healthcare Conference in January, Heartware preannounced 4Q13 revenues of \$53M vs. Street consensus at the time of \$58M, citing

²⁴¹ J.P. Morgan, "Thoratec Corp., Messy Finish to 2013; Guidance Reflects Ongoing Competitive Pressures," February 5, 2014.

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	unusually weak November volumes in the wake of the CMS National Coverage Decision for the miss. While
	Thoratec's results suggest that the company did pick up some share in the quarter, it now appears that the
	majority of these lost November HVAD cases were simply delayed and then recouped by Heartware in
	December and January. We should get a better sense of how this dynamic is playing out when Heartware reports its full 4Q results on February 27.
	Turning back to the quarter, Thoratec sold 1,020 pumps in 4Q, a decline of 4% vs. 4Q12 and 6 below consensus. VAD revenues of \$127.4M were flat YOY, as modest growth from the HeartMate II and peripherals helped to offset a weak Centrimag performance and further declines in the PVAD/IVAD product line. Revenue per implant rose 4% YOY to nearly \$125,000, reflecting the continued benefit from the Pocket Controller as well as positive mix. HeartMate II sales rose 2% to \$113.0M, \$800k above consensus, while PVAD/IVAD revenues of \$3.4M (down 29%) were in-line with the Street. Finally, Acute Support sales of \$11.0M (down 4%) were \$1.3M below consensus, as that segment saw its recent momentum stall in the face of tougher comps.
	Barrington Research said the quarter that "was a bit on the light side," but reiterated its Outperform rating and price target for the Company, stating "we think there is a good chance that THOR is going to have a superior device on the market [compared to HeartWare]": ^{242, 243}
	Investment Highlights THOR's quarter was a bit on the light side of things with revenue of \$128 million, below the Street consensus of \$130 million and non-GAAP EPS was \$0.38 versus the consensus of \$0.41. In addition, management noted that the first half is likely to be softer than the second due to some weakness around the journal articles related to the higher thrombus rates reported at Cleveland Clinic and a few other centers. In our opinion, THOR's valuation is going through a transition point where investors have become more uncertain about the future market share outlook for THOR, particularly in 2015-2017 before a fully implantable pump is expected to be available. It could come sooner, particularly if MVAD is better than expected.

²⁴² Barrington Research Associates, "Thoratec Corporation (THOR-NASDAQ), HTWR Making Headway but Valuation of THOR is Very Attractive; Setting up to be a Great 2016 Story or a Bargain for a Strategic at Current Levels," February 6, 2014.

²⁴³ The February 6, 2014 Barrington Research report mistakenly states that it was "raising [its] price target to \$49," when it actually raised its price target to \$49 in its October 31, 2013 report (Barrington Research, "Thoratec Corporation (THOR-NASDAQ) Solid Q3/13 Results; CMS Decision Requires BTT Eligible Patients to Be On the Transplant List which is Favorable for THOR; Market is Growing," October 31, 2013).

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	We had an opportunity to sit down with Doug Godshall of HTWR and there was a renewed confidence in the improved hemodynamics of its pump. Clearly smallest and best would win, but easier said than done. There is no doubt that there have been some breakthroughs at HTWR that have improved the blood handling characteristics, which has been at the heart of the issues with going smaller. We had a chance to speak with THOR and learned a bit more about how the HMIII may be positioned and although we have heard aspects of the message before, it is more clear to us now and we think there is a good chance that THOR is going to have a superior device on the market. HMIII offers a smaller design by close to half, larger intake valves and no bearing for blood to come in contact to. There are no moving parts rubbing together so there is less heat and the magnetic levitation allows for the absence of a bearing or moving part and also enables pulsatility because the magnets can "change speed" quickly enabling a pulse.
	HM3 will be about the size of the current HVAD, so it will be able to be done through a Right Thoracotomy as well. HTWR is taking it a step further with its even smaller MVAD device by undergoing a trial using only a thorascopic approach. One can understand why investors have been shying away from THOR. We have a different view for two primary reasons, but one can understand that it has become even more uncertain regarding future share as both companies are making meaningful progress on reducing issues associated with LVAD's. In our opinion, there is higher risk in HTWR's MVAD than HM3. We expect HM3 to be superior to HMII, which we believe is superior to HVAD and given the issues with the HVAD design, we believe the more appropriate expectation is for share to remain relatively consistent. We are reiterating our OUTPERFORM investment rating and raising our price target to \$49 based a growing HF market.
	According to Bloomberg, following the disclosures on February 4, 2014, the average of analysts' price targets for the Company decreased to \$43.75 from \$44.67, or -2.1%, and out of 15 analysts with investment ratings for the Company, all maintained their ratings. (<i>See</i> Exhibit 5C.)
	Remark: Given the mix of information disclosed on February 4, 2014, including that: 1) the Company's quarterly financial results were considered "basically in-line;" 244 2) "investors [were] more concerned with market growth and revenue growth than profitability and given recent noise around thrombosis;" 245 3) the Company had regained market share from HTWR in and outside

²⁴⁴ Leerink Partners LLC, "Thoratec Corp., 2014 Outlook: A Transition Year as Focus Shifts to Clinical Milestones," February 4, 2014.

²⁴⁵ Barclays, "Thoratec Corp., Guidance Cautious on Thrombosis," February 5, 2014.

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	the U.S.; ²⁴⁶ 4) the Company's guidance, while below consensus expectations, was already well-reflected in [the] current valuation" ²⁴⁷ and no surprise as "THOR tends to start the year in a conservative posture," the statistically insignificant Company-specific return on February 5, 2014 is consistent with that expected in an efficient market.
5/7/2014	After market close on May 6, 2014, Thoratec released its first-quarter 2014 financial results. ²⁴⁸ For the quarter, the Company reported revenues of \$125.7 million, GAAP income of \$18.2 million, or \$0.32 per share, and non-GAAP net income of \$23.7 million, or \$0.41 per share. This compared to analysts' consensus of \$122.5 million in revenue and non-GAAP EPS of \$0.39 per common share. ²⁴⁹ The Company stated in its press release: ²⁵⁰
	"Our operational and financial progress in the first quarter provides a solid foundation for a successful 2014," said Gary F. Burbach, President and Chief Executive Officer. "Performance in the quarter was driven by continued growth in HeartMate II, along with exceptional results in our CentriMag acute product line," he added.

	"We remain excited about upcoming pipeline opportunities with HeartMate III and HeartMate PHP, both of which we anticipate will begin clinical trials in the near future," Burbach commented. "We continue to expect that our attractive end market opportunity combined with technological innovation will drive strong future growth."
	The Company reiterated its previous guidance for 2014. ²⁵¹

²⁴⁶ See, e.g., Wells Fargo Securities, LLC, "Thoratec Corp., THOR: Q4 In Line--Share Appears Stable," February 4, 2014; Northland Securities, "Thoratec Corporations (THOR), In-line Q4-13....FY14 guidance seems conservative...," February 5, 2014.

²⁴⁷ Leerink Partners LLC, "Thoratec Corp., 2014 Outlook: A Transition Year as Focus Shifts to Clinical Milestones," February 4, 2014.

²⁴⁸ PR Newswire, "Thoratec(R) Reports First Quarter 2014 Results," May 6, 2014, 4:02 PM.

²⁴⁹ Bloomberg, "Thoratec 1Q Adj. EPS, Rev. Beat Ests.; Reaffirms Yr Forecast," May 6, 2014, 4:04 PM.

²⁵⁰ PR Newswire, "Thoratec(R) Reports First Quarter 2014 Results," May 6, 2014, 4:02 PM.

²⁵¹ *Ibid*.

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	The Company held a conference call with analysts later that day. ²⁵²
	William Blair & Company wrote that the Company's first quarter results "exceeded expectations," but when one-off events were backed out, "sales were roughly in line with estimates." The analyst noted that HeartMate II sales "continue[d] to struggle in the United States" and it did "not see a catalyst to reverse this trend": ²⁵³
	Tuesday afternoon, May 6, Thoratec reported first-quarter results that exceeded expectations; however, we estimate that when adjusted for the impact of a stocking order in Japan sales were roughly in line with estimates. The company reiterated its 2014 guidance, which implies acceleration in the core business in the second half of the year, though we believe that expectations are reasonable for the full year.
	Highlights from the Call:
	Domestic Market Commentary. Investor expectations for this segment of the business heading into results were quite low and indeed proved to be the case during the first quarter, with domestic pump sales growth of 2%. The company continues to struggle in the United States (as seen by a two-year-rolling average decline of 6% in HeartMate II units), and we do not see a catalyst to reverse this trend. From a market perspective, it appears that the industry accelerated roughly 100 basis points during the first quarter, though the primary beneficiary in the United States is HeartWare (HTWR \$94.05; Market Perform).
	International Growth. Internationally, pump unit growth of 28% was buoyed by a 40 unit stocking order in the quarter; excluding this stocking order, units grew 9% internationally. The company mentioned that there was a positive impact from one-off distributor activities in the quarter as well, and so we anticipate there will be a deceleration in this growth rate heading into the second quarter. This core growth rate implies that the company has been ceding share this quarter (excluding Japan where Thoratec is the only provider); we believe that, even excluding this stocking order, the market grew in the mid-20s this quarter. We do not foresee any material changes in that dynamic until the HeartMate III is introduced internationally next year, although MVAD from HeartWare should only be about six months behind them from a timing perspective.
	2014 Guidance. Management reiterated its full-year revenue and earnings per share guidance, which, when adjusting first-quarter sales for the inclusion of a Japanese stocking order, imply an acceleration in the second

²⁵² CQ FD Disclosure, "Event Brief of Q1 2014 Thoratec Corporation Earnings Conference Call - Final," May 6, 2014.

²⁵³ William Blair & Company, "Thoratec Corporation, Nothing Out of the Ordinary; Worldwide Share Loss and the Wait for PHP and HMIII in Europe Continue," May 6, 2014.

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	half of the year. The guidance range, in our view, is still achievable as we believe many of the dynamics
	(thrombus, international softness, and moderate share loss) are implied in guidance.
	Barclays said the Company's results "was helped by timing in Japan (~40 units) that will not reoccur." The analyst lowered its price target for the Company to \$43 from \$45, and said that "in order to drive upside, we think THOR will have to make progress to stem share loss by working to impact the effect of thrombus concerns on physician behavior": ²⁵⁴
	MATT'S MINDSET: THOR reported 1Q14 results that beat expectations on the top line ~\$126 MM (+7% vs. cons \$123 MM), and EPS were \$0.02 above (\$0.41), but the result was helped by timing in Japan (~40 units) that will not reoccur. HMII units increased ~8% (~3% organic) with US growth of 2% and OUS +9% excluding stocking. With LVAD results in, we estimate the WW VAD market grew ~18% in the 1Q, with THOR losing ~600 bps of share q/q and y/y. The market was more resilient than we expected in the 1Q given thrombus concerns, but this was balanced by a more negative impact on THOR's share. Given these puts and takes, THOR left its outlook for the year unchanged with revenue of \$520-\$535 MM (cons. \$527 MM) and EPS of \$1.72- \$1.82 (cons. \$1.75). We continue to believe guidance is reasonable but in order to drive upside, we think THOR will have to make progress to stem share loss by working to impact the effect of thrombus concerns on physician behavior.
	THOR expects to begin FIM implants for its HMIII CE Mark trial in the near term with approval in 2015. In the US, THOR submitted final protocol to the FDA for a single cohort trial (HMIII randomized vs. HMII) expected to begin later in 2014. The trial will follow patients for short term and long term indications. On PHP, the CE Mark study is expected to begin in the next few months (a slight delay), with the IDE to start in late 2014 (multi-day support). Net-net, while we have concerns about near-term share, we continue to be bullish on the LVAD market and expect it to grow faster and THOR to retain more share than anticipated. In the near term, we expect THOR to trade sideways with pipeline catalysts in 2015 and as thrombus concerns diminish. We continue to recommend shares based on our view of LVAD market growth, potential size, THOR's assets, and valuation. We are lowering our PT to \$43 based on 4.1x our 2015 revenue of \$576 MM.
	BTIG noted that "THOR put up a reasonable quarter," but that "[i]nvestors are likely to worry that the result required a ~40 pump bolus order in Japan, THOR lost share in both the U.S. and Europe, and the NCD is leading to declining sales in non-transplant centers." While it maintained its Buy rating for the Company, it was a "little less positive on THOR post their call": 255

²⁵⁴ Barclays, "Thoratec Corp., Market Growth but Share Concerns," May 7, 2014.

²⁵⁵ BTIG, "THOR, HTWR: LVADs, Market Growth is Most Important," May 7, 2014.

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	Our BUY theses on THOR and HTWR do not change though we admit we feel a little less positive on THOR post their call. We believe share needs to bounce back some next quarter or concerns will increase.
	Probably good enough. THOR put up a reasonable quarter that's probably good enough with shares in the \$32 range. While \$125.7M and \$0.41 beat consensus of \$122.7M and \$0.39, the quarter and commentary were squishy. Investors are likely to worry that the result required a ~40 pump bolus order in Japan, THOR lost share in both the U.S. and Europe, and the NCD is leading to declining sales in non-transplant centers.
	Most importantly though, the market exceeded expectations. THOR placed 701 US pumps and 263 OUS. HTWR placed 313 and 352. Going into the prints, expectations were 701, 258, 300, and 292 in the same order. All told the market grew 16% vs consensus of 9% going into both reports and this is the most important metric for both companies.
	We believe THOR can cut share losses and this is going to be key. While most expect HTWR to gain U.S. share, the EU share gained this quarter was surprising. It seems the NEJM thrombus article hurt share in both places. We believe the ISHLT results along with some education by THOR will help correct this. OUS HTWR opened some new geographies that THOR is likely to enter. Additionally, it seems NCD benefits gained in 4Q were lost this quarter as non transplant centers slowed down implants as BTT patients need to be listed by a transplant center. THOR is working on coordination here. We expected 25-30 in Japan so the extra bolus was really only 10-15 and THOR would have been inline OUS anyway.
	All told our ratings do not change. Market growth is most important to both companies and insulates our Buys. We continue to believe these businesses are lumpy and should be looked at on a 4-6 quarter basis. There is no doubt Q1 went to HTWR in this ongoing battle, but THOR's mgmt. maintained their previous view that 2H results will improve.
	Canaccord Genuity maintained its Buy rating for the Company "principally as a hedge against any further delays in HTWR's MVAD regulatory pathway or unforeseen hiccup," and lowered its price target to \$37 from \$40, stating that it "expect[ed] THOR to face another challenging year in the US in 2014": ²⁵⁶
	Investment recommendation We continue to favor HTWR as the stock to overweight in this duopoly, but remain bullish on the long-term growth potential of the LVAD market, owing to the size of the TAM (40k+ patients in US alone), low

²⁵⁶ Canaccord Genuity, "Q1 Benefits From Japan Bolus; Share Loss Accelerates In Eu; Target To \$37 From \$40," May 6, 2014.

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	penetration level (10%E in US/Europe; <5%E in Japan) and next-generation technology coming down the
	pipe, which we think will drive strong double-digit growth in this duopolistic market for years to come.
	We expect THOR to face another challenging year in the US in 2014 as HTWR enrolls its DT revised-protocol
	study and commences MVAD trials. We maintain a BUY rating principally as a hedge against any further
	delays in HTWR's MVAD regulatory pathway or unforeseen hiccup. Moreover, we are optimistic about the potential for THOR's HM3 (on track to begin trials in Europe & US in '14) and HM-PHP in the acute HF
	market (not in our estimates). We lower our target from \$40 to \$37 (3.6x EV/Sales multiple applied to our
	2015 revenue estimate of \$560M).
	Investment highlights
	Q1 sales (\$126M; +7%) beat estimates (CG: \$121M; Street: \$123M) driven by a bolus order of HM2 from its distributor in Japan. THOR lost share to HTWR in both US and European VAD markets as expected, but unit
	volume in both geographies were in line with our targets. Pro forma EPS of \$0.41 beat our \$0.38E, on higher
	sales, and lower OpEx (timing), offset by lower GM (69.5% vs. 70.2%E).
	THOR reiterated 2014 guidance (\$520-535M in revenue and \$1.72- \$1.82 pro-forma EPS).
	Credit Suisse maintained its Outperform rating, but lowered the Company's 2014 revenue and EPS estimates "on the 1Q miss & lower expected LVAD share" in the U.S. and abroad: ²⁵⁷
	1Q14 US & Europe Light of our Estimates, Offset by Japan Stocking: THOR reported 1Q14 revs/EPS of
	\$125.7M (6% CC)/\$0.41 vs. our \$128.6M (9% CC)/\$0.42 estimates & consensus of \$122.6M/\$0.39 (1Q sales
	included a ~\$4M benefit from Japan stocking not in our estimates). US HMII units of 701 were light of our
	740 estimate, but in line with consensus while 263 OUS HMII units exceeded our 250 estimate on Japan stocking. EBIT margin was in line with our estimate with the sales miss driving the \$0.01 EPS miss. THOR
	reiterated FY14 sales/EPS guidance of \$520-535M/\$1.72-1.82. We're lowering our FY14 sales/EPS estimates
	to \$520M (3% CC)/\$1.78 from \$532M (6% CC)/\$1.81 on the 1Q miss & lower expected LVAD share. Our
	estimates compare to consensus sales/EPS of \$528.0M/\$1.76.
	Meaningful Share Shift: Based on THOR/HTWR's results, we estimate US/OUS ex-Japan LVAD volumes
	grew 12.5%/9.5% in 1Q14 vs. 11.7%/8.4% in 4Q13 (ex-stocking, including PVAD/IVAD). In the US, we
	estimate THOR lost ~500bps of sequential share (ex-stocking incl. PVAD/IVAD) while OUS ex-Japan, we

²⁵⁷ Credit Suisse, "Thoratec Corp. (THOR), LVAD Markets OK but THOR Share Light," May 6, 2014.

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_	estimate THOR lost 600bps of sequential share (ex-stocking, with PVAD/IVAD) though THOR said a few
	points of loss were likely from distributor order timing.
	1Q EU Results Telling: OUS ex-Japan results with 207 total THOR pumps (~10 PVAD/IVAD) revealed weakness relative to 351 HTWR HVADs (327 estimated ex-stocking). This suggests that growing confidence in HTWR's HCVA solution, coupled with its smaller size (which facilitates less invasive implantation) & a growing recognition of HMII's proclivity toward thrombus might be tipping the competitive balance toward HVAD. Our Outperform THOR rating remains based on the notion that HMIII achieves parity with MVAD in key dimensions like thrombus, bleeding & narrows the gap in surgical versatility.
	Leerink Partners noted that "the beat was somewhat confounded by a large, one-time distributor order out of Japan," and lowered its price target for the Company to \$40 from \$45, stating that "sales headwinds were largely well-known but perhaps more intense than feared": ²⁵⁸
	Bottom Line: Last night, THOR delivered a solid 1Q14 beat with sales of \$125.7M (+7%) vs. us at \$121.5M and consensus at \$122.7M. But the beat was somewhat confounded by a large, one-time distributor order out of Japan we estimate it added ~\$4-\$5M in sales, or 40 units. Ex. this benefit, sales headwinds were largely well-known but perhaps more intense than feared: (1) Impact of NEJM thrombus article on market growth more broadly via referrals and more acutely at certain high volume implant centers; (2) Impact of the thrombus debate on market shares in the U.S. combined with distributor volatility internationally, ex. Japan; and (3) Modest impact of NCD on open-heart or non-transplant centers. Still, THOR reiterated 2014 sales guidance, giving us confidence in the company's ability to drive reaccelerating sales growth in the back half of the year as these market growth headwinds begin to ease particularly within Destination Therapy (DT) as NEJM article concerns abate and market shares stabilize globally. Reiterate OP rating and lower price target to \$40 vs. \$45 previously.
	1Q14: Japan Order Boosts OUS Sales and NEJM Impact Clear. In 1Q14, THOR shipped 964 HeartMate II pumps worldwide, ~20 below consensus but ~30 above us. In the U.S., we estimate that THOR ceded another ~8 points of Bridge-to-Transplant (BTT) market share sequentially to HTWR (OP) helped in part by thrombus concerns fueled by the NEJM article. But this weakness was partially offset by strong 50% + DT growth, as the market continues to exceed expectations despite these clinical overhangs. And internationally, THOR delivered nearly 30% growth including a ~40-unit contribution from a large, one-time distributor order

²⁵⁸ Leerink Partners LLC, "Thoratec Corp., 2014 Outlook: Back-End Loaded Year as Headwinds Ease," May 7, 2014.

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	in Japan. Ex. this benefit, THOR grew international HeartMate II volumes 9% but now sits with market share in the high-30% area.
	Estimate Changes. Our 2014 estimates move a shade higher to \$531.5M (+6%) from \$528.3M to reflect 1Q outperformance. But in 2015, our sales estimate moves lower to what we believe is a base case scenario and reflects continued market share loss in U.S. BTT and OUS offset by strong DT market growth to \$592.2M (+11%) from \$622.2M.
	Continued Focus on Pipeline. THOR's next-gen LVAD HeartMate III remains on track for first-in-man in the next few weeks. More importantly, the company expects CE Mark approval and launch in 2015. While official data for HeartMate III is not likely to be available until early 2015, the trial will generate significant interest within the relatively tightknit cardiothoracic surgeon community. And in the U.S. in 2H14, THOR will initiate a non-inferiority study vs. the current-gen HeartMate II with two trial arms one for short term and one for long term with no real designation between BTT and DT.
	Northland Securities wrote that Company's results "optically looked good," but it was "disappointed with the [Company's] share loss" to HeartWare. "Once again," the analyst commented, "Thoratec it seems got outmaneuvered and outflanked by Heartware": 259
	Summary THOR reported Q1-14 revs of \$125.7M which optically looked good vs. consensus of \$122.7M & our estimate of \$120.7M. Non-GAAP EPS of \$0.41 came in slightly better than consensus. Company maintained FY14 revenue guidance of \$520 - \$535M, with GAAP EPS of \$1.28 - \$1.38. Embedded in the FY14 guidance is the impact of the NEJM thrombosis article which is expected to be more pronounced in 1H-14; contribution from Japan of approx 100 units, and negative contribution from the HMIII CE mark trial.
	Key Points HM-II units in the U.S. @ 701 were up 2% y/y, OUS units were up 28% y/y. Excluding contribution a larger than expected distributor stocking in Japan, OUS growth was 9% y/y. ASP's were stable.
	The math indicates HM-II lost approx 500 bps market share in Europe, & 400 bps market share in the U.S. to Heartware on a sequential basis. We confess we are disappointed with the share loss. If we strip out the larger

²⁵⁹ Northland Securities, "Thoratec Corporation (THOR), In-line Q1 marred by share losses...," May 7, 2014.

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	than expected distributor stocking in Japan, the growth in Europe and the U.S. left something to be desired.
	Once again, Thoratec it seems got outmaneuvered and outflanked by Heartware.
	Thoratec indicated that it had seen a greater than expected impact from the NEJM article discussing thrombosis issues with the HM-II both in the U.S. and Europe. It is quite surprising that the first real negative article on HM-II had such a swift and material impact. Compare that to Heartware which has seen its share of significantly higher negative press (delayed BTT approval delayed DT trial, incomplete data presentations on adverse event rates, a generally accepted view of a high stroke rates) and yet there seems to be no tangible effect on Heartware's product adoption curve. To us, there are only two logical explanations for the above - 1)
	Heartware is much better at its messaging and marketing; 2) Ease of implantation trumps adverse event rates.
	HM-III implants for the CE mark study to begin in the next few weeks. PHP CE mark study start delayed given some final controlled software testing needed. Company expects to begin the PHP trial for high-risk PCI in a couple of months. HM-III IDE study to be a hybrid BTT / DT study with blended inclusion / exclusion criteria. HM-III IDE is expected to be started later in 2014.
	Continued share losses for the HM-II, especially given what we know about the high neurological event rates for the HVAD is not encouraging. Thoratec seems to have been completely neutralized by Heartware's superior messaging (at least till the final HVAD DT data comes out) and a more aggressive international VAD team.
	Having expressed our frustration, we still stick with Thoratec as the better play in the VAD space. Thoratec, in our opinion, is forthright in its data presentation, has a more forgiving pump, and has a call option to close the ease of implantation issue that is plaguing its market share in the U.S. and Europe.
	Oppenheimer & Co. lowered it price target for the Company to \$41 from \$45 "on recent peer group multiple compression," commenting that "the share loss and Japan stocking take the steam out of 1Q's beat": ²⁶⁰
	Summary 1Q sales of \$125.7M (+7% y/y) were above our \$119.9M/Street's \$122.7M on higher HeartMate-II sales. About \$3M of the upside was from a Japanese stocking bolus. US HMII units were above our estimate led by a better market, though the National Coverage Decision is creating noise, and the late '13 HMII thrombosis article in NEJM led to share loss including in Europe. Overall, the share loss and Japan stocking take the

²⁶⁰ Oppenheimer & Co., "Thoratec Corp., Noise Muddles 1Q Beat," May 7, 2014.

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	steam out of 1Q's beat, though the expected overall tougher environment from thrombosis in 1H was contemplated in THOR's unchanged guidance and management is encouraged following a users meeting last weekend. The LVAD market was better than expected in 1Q and HMIII is on track.
	Key Points 1Q sales. HMII sales drove the beat; US/int'l units were +29/+15 versus us, as the US market was better than expected and THOR benefited from a 40-unit distributor stocking bolus in Japan. Ex-Japan, we estimate OUS was flat with Europe +7%, while Canada dragged on tough comps.
	WW market (ex-stocking/Japan) grew high-teens 1Q, above our 10% expectation. THOR's US 1Q share was 70% US from 77% in 4Q (~53% in BTT) with 2-3pts from HTWR's DT trial. THOR's share was 38% Int'l (ex-Japan) from 43% 4Q with some EU share loss plus HTWR entering some new countries THOR has not yet penetrated.
	NEJM. The referral impact on the market from the thrombosis article seems better than expected; THOR though lost share in some large sites following the NEJM article. Management highlighted encouraging feedback post a 350 surgeon user meeting last weekend which included both centers with high and low thrombosis trends. Best practices were in focus.
	HMIII On-track. First-in-man and CE-Mark trial for HMIII is expected in the coming weeks; management reiterated CE Mark expectation in '15. THOR has submitted the IDE to FDA; trial enrollment is expected to begin later in '14.
	Model. Our estimates remain largely the same, with our assumption that benefit of the Japan bolus in 1Q reverses in 2Q. We forecast '14 revs of \$527M (+5%) and EPS of \$1.76 (flat). For '15E, we look for \$580M sales (+10% y/y)/\$2.08 EPS (+18%). PT lowers to \$41 from \$45 on recent peer group multiple compression.
	Piper Jaffray lowered its price target for the Company to \$40 from \$48 "on decreased small cap medtech peer multiples and increased risk to guidance predicated on retaking recently lost EU share." The analyst noted that "share losses were primarily driven by thrombus concerns." However, Piper Jaffray reiterated its Overweight rating, stating "[w]ith sentiment and valuation low coming into the call we see limited downside and would stick with shares in front of pipeline catalysts HMIII and PHP": ²⁶¹
	Conclusion

²⁶¹ Piper Jaffray, "Thoratec Corp. (THOR), Thoughts On 1Q14," May 7, 2014.

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	Thoratec reported revenues of \$125.7M vs. consensus \$122.7M (PJC \$119.1M) but results benefitted from a 40 unit (~\$4.2M) Japan stocking order, which pulled revenue forward from Q2 into Q1. US volumes were spot on consensus but international volumes, net of stocking, were light with THOR losing several points of share in Europe. Management stated that share losses were primarily driven by thrombus concerns in a concentrated group of EU centers and some fluctuation in distributor ordering patterns. Revenue now looks to be down sequentially into Q2 and reiterated FY14 guidance implies a retaking of lost EU share in 2H14. HMIII (set to begin its CE Mark study) now becomes the key lever for THOR to challenge HTWR in Europe. With sentiment and valuation low coming into the call we see limited downside and would stick with shares in front of pipeline catalysts HMIII and PHP.
	FY14 Guidance Reiterated. Management reiterated FY14 guidance of \$520-535M (+3-6%), with Q2 likely down sequentially given the revenue pull-forward impact of the Japan stocking order. Our model is essentially unchanged, save for moving the 40 unit Japan order from Q2 to Q1 and letting some of the revenue beat in Q1 flow through to YE. The HMIII CE Mark trial now becomes a key leverage point to retrain EU sites with the anticipated FY15 launch a carrot to drive market share. The CE Mark trial (50 patients in 7 sites) is still expected to complete enrollment in FY14, and the US IDE study is still expected to begin enrolling in late FY14. Management holds out the design of its successful Centrimag extracorporeal circulatory device as a proof statement for the magnetically levitated design of HMIII and the smaller size and implant location should solve the current size disadvantage vs. HVAD. At present, THOR continues to enjoy a ~6 month head start over MVAD in the race to market for the next generation devices.
	Thrombus A More Prominent Issue Than We Expected. Parsing management's comments, we believe the thrombus discussion wasn't much of a headwind in the US market but did present a challenge in a select group of centers in Europe. We believe the discussion on patient management at the April ISHLT meeting and THOR's subsequent user meeting will ease physicians' concerns and THOR does have HMIII as a potential lever/carrot in FY14 into a planned EU launch in FY15. Reiterate OW Rating, Lowering PT To \$40. At present valuation we believe THOR shares have built in a
	worst-case market share scenario and show limited value for either the HMIII or PHP pipeline products. We are lowering our PT from \$48 to \$40 based on 3.4x CY15E Sales (4.2x prior) on decreased small cap medtech peer multiples and increased risk to guidance predicated on retaking recently lost EU share. Risks to Achievement of Price Target Slower-than-expected ramp in Heartmate II sales for DT and competitive threats.

Impact Date	Event
	J.P. Morgan wrote that the Company reported results above consensus, but "the quality of this beat was poor" owing to one-time events. "However, more important than the 1Q results themselves" was that Thoratec was losing market share to HeartWare. The analyst lowered its price target for the Company to \$31 from \$37: ²⁶²
	Thoratec reported mixed 1Q results Tuesday after the close, with sales of \$125.7M (+7%, +6% cc) coming in \$3.2M above Street consensus. The quality of this beat was poor, however, with peripheral sales and Centrimag driving the upside. THOR also benefited from an unusually large stocking order in Japan ahead of that country's April 1 reimbursement cuts, which we estimate pulled forward \$3-4M in pump sales from 2Q. On the bottom line, adjusted EPS of \$0.41 (flat YOY) were \$0.02 above consensus, as well contained operating expenses offset a weak gross margin.
	However, more important than the 1Q results themselves, in our view, is what they signal about the competitive dynamics in the VAD market. Coming on the heels of Heartware's own exceptional first quarter performance, Thoratec's numbers confirm our hypothesis that Heartware gained significant share in 1Q. In the US, we estimate that the HVAD had a nearly 30% market share in the quarter ex-stocking units, an increase of 670bps sequentially and 380bps above its prior high water mark in 3Q13. While it is difficult to segment out bridge and DT volume given the blurring lines between the two patient groups, our math suggests that Heartware's BTT share was roughly 47% in 1Q and may have approached 55% at sites where both pumps are available. Internationally, we estimate that Heartware captured an incremental 750bps of share sequentially (ex-Japan) and 430bps compared to the third quarter, climbing to a commanding 58% vs. 36% lead over Thoratec.
	Is there a silver lining for Thoratec in these results? If there is, it would start with the fact that the VAD market continues to grow at a healthy clip despite the concerns about HeartMate II pump thrombosis that were raised in November's <i>New England Journal of Medicine</i> articles. We estimate that worldwide VAD volume increased 17% YOY in 1Q, with US implants up 13% ex-stocking and OUS units ex-Japan climbing 22%. It's also important to point out that Heartware was coming off of a below trend 4Q performance as it dealt with its own issues in the wake of CMS's revised National Coverage Decision for VAD therapy. As a result, we believe that there was likely some pent-up HVAD demand that spilled over into the early part of the year and magnified Heartware's 1Q share gains. Meanwhile, data presented at last month's ISHLT meeting should help to quell any lingering HeartMate II thrombosis concerns. Despite all of this, however, it's clear that the HVAD currently has significant momentum in both the US and Europe, a trend that is likely to continue to pressure Thoratec's business in the near-term.

²⁶² J.P. Morgan, "Thoratec Corp., Mixed 1Q Results; Mounting Share Losses Cause for Concern," May 7, 2014.

Impact Date	Event
	According to Bloomberg, following the disclosures on May 6, 2014, the average of analysts' price targets for the Company decreased to \$41.23 from \$43.31, or -4.8%, and out of 16 analysts with investment ratings for the Company, all maintained their ratings. (<i>See</i> Exhibit 5C.)
	Remark: Given that: 1) the Company's reported results exceeded consensus expectations, but were confounded by non-recurring events; 2) the quarterly beat was primarily attributed to peripheral sales and Centrimag, while HeartMate II sales "struggled" 3) several analysts expressed concerns over the Company's shrinking market share; and 4) many analysts lowered their estimates for the Company following its earnings release, the statistically significant negative Company-specific return on May 7, 2014 is consistent with that expected in an efficient market.
8/7/2014	After market close on August 6, 2014, Thoratec released its second-quarter 2014 financial results. ²⁶⁵ For the quarter, the Company reported revenues of \$118.1 million, GAAP income of \$17.4 million, or \$0.30 per share, and non-GAAP net income of \$24.4 million, or \$0.43 per share. This compared to analysts' consensus of \$127.6 million in revenue and non-GAAP EPS of \$0.43 per common share. ²⁶⁶ The Company stated in its press release: ²⁶⁷
	"We are disappointed with the shortfall in our financial results as near-term factors are having a greater than expected negative impact on our business," said Gary F. Burbach, President and Chief Executive Officer. "However, our confidence in the long-term outlook for our business remains unchanged, and we will focus on executing to realize these opportunities while working diligently on implementing actions to improve near-term results," he added
	"We have realized significant clinical progress in our pipeline opportunities with encouraging starts of CE Mark trials for both HeartMate III and HeartMate PHP, while HeartMate III also received conditional approval

²⁶³ J.P. Morgan, "Thoratec Corp., Mixed 1Q Results; Mounting Share Losses Cause for Concern," May 7, 2014.

²⁶⁴ William Blair & Company, "Thoratec Corporation, Nothing Out of the Ordinary; Worldwide Share Loss and the Wait for PHP and HMIII in Europe Continue," May 6, 2014.

²⁶⁵ PR Newswire, "Thoratec(R) Reports Second Quarter 2014 Results," August 6, 2014, 4:02 PM.

²⁶⁶ Bloomberg, "Thoratec 2Q Non-Gaap EPS 43c, Est. 43c," August 6, 2014, 4:02 PM.

²⁶⁷ PR Newswire, "Thoratec(R) Reports Second Quarter 2014 Results," August 6, 2014, 4:02 PM.

Impact Date	Event
	from FDA to begin the U.S. trial," Burbach commented. "Moreover, the accelerated share repurchase announced today reflects conviction in our long-term vision, and our strong financial position will allow us to continue funding future growth initiatives, strategic investments, and share repurchases going forward."
	Management revised its guidance for 2014 downward, stating that it expected revenue to be in the range of \$455–\$470 million versus previous guidance of \$520–\$535 million; GAAP net income to be in the range of \$0.80–\$0.90 per share versus previous guidance of \$1.28–\$1.38; and non-GAAP net income to be in the range of \$1.25–\$1.35 per share versus previous guidance of \$1.72–\$1.82. ²⁶⁸
	The Company held a conference call with analysts later that day, in which Burbach stated: ²⁶⁹
	We believe three primary factors continue to have a greater than previously expected negative impact on our business. These factors include an ongoing focus on adverse events, including thrombus. The growing surgical interest in less invasive implant techniques, particularly in Europe. And a lack of growth within the non-transplant or open heart centers in the United States.

	Beginning with adverse events, we believe perceptions about pump thrombosis since the late 2013 New England Journal of Medicine article, along with greater scrutiny of clinical outcomes overall, continues to be the largest factor impacting our business on a worldwide basis. While we expected this would be a headwind during the first half of the year, it is now clear the impact is persisting longer than expected.
	The Company also issued two additional contemporaneous press releases. One press release announced a \$30 million share buyback program ²⁷⁰ and the other announced the start of a clinical trial for HeartMate III, also known as HeartMate PHP. ²⁷¹

²⁶⁸ *Ibid*.

²⁶⁹ CQ FD Disclosure, "Q2 2014 Thoratec Corp Earnings Call - Final," August 6, 2014.

²⁷⁰ PR Newswire, "Thoratec Announces \$30 Million Accelerated Share Repurchase," August 6, 2014, 4:02 PM.

²⁷¹ PR Newswire, "Thoratec Announces Start Of The HeartMate PHP(TM) CE Mark Trial," August 6, 2014, 4:02 PM.

Impact Date	Event
	William Blair & Company wrote that "the problems affecting Thoratec do not appear to be quick fixes." Slowing market growth, the analyst said, was the biggest issue affecting the Company: ²⁷²
	Wednesday afternoon, August 6, Thoratec reported second-quarter results that missed expectations. Market growth pulled back in the quarter, and the company slashed 2014 revenue and EPS guidance substantially. Even with the stock indicated down 27% in the aftermarket, we are going to remain on the sidelines as the problems affecting Thoratec do not appear to be quick fixes.
	Market Commentary. The company's performance, along with HeartWare's (HTWR \$83.43; Market Perform) results, indicate that the market for LVADs decelerated during the second quarter (albeit modestly to the low double digits). Thoratec believes the market will slow even further in the second half as clinicians are increasingly questioning the benefits of these highly sophisticated devices in a very sick patient population. We have long questioned the sustainable market growth rates of LVADs believing it to be closer to high single to low double digits, and the commentary from Thoratec this quarter appears to be some confirmation of that thesis.
	Share Loss Expected to Continue Domestically and Internationally. In the United States, share loss continues to competitor HeartWare, and it is clear that the issues from the NEJM article relative to thrombosis have not yet subsided. In addition, management mentioned a slowdown in its key-to-growth open heart centers, which is also affecting performance. Internationally, pump units declined by about 30% (albeit against a difficult comparison in the same period last year), which also was rather disappointing; this is likely more a function of the increased number of thoracotomies being done outside of the United States, where Thoratec cannot yet compete and managerial turnover at the top of this segment of the business. In addition, growth in Japan continues to be less than impressive and management's comments were more cautious than usual; the company now believes that a destination therapy label will be required before gaining additional traction in this geography. We do not foresee any material changes in the market dynamic either domestically or internationally until the HeartMate III is fully introduced.
	2014 Guidance. Management slashed its full year 2014 guidance both on the top and bottom line, which now looks relatively conservative to us; many of the dynamics that affected the company this quarter (thrombus, international softness, and share loss) seem to be implied in guidance, although we remain on the sidelines due to the before-mentioned cautiousness on the market growth.

²⁷² William Blair & Company, "Perfect Storm of Problems Results in Slashed Guidance; Fixes to These Issues Appear Protracted," August 6, 2014.

Impact Date	Event
	Barclays lowered its price target for the Company to \$40 from \$43 in response to "a perfect storm of negative factors that we expect to impact growth for the next few quarters," although it "continue[d] to view long-term market potential and growth as significant": ²⁷³
	MATT'S MINDSET: THOR reported 2Q14 results that came in below the consensus expectations on the top line (~\$118 MM; down ~10% versus consensus of ~\$128 MM; down ~2%) and in-line EPS of \$0.43. Revenue downside was driven by weaker HMII volumes both US and OUS, with THOR pointing to three factors which drove weakness: ongoing focus on thrombus which led to share loss, growing EU interest in less invasive implant techniques, and lack of growth within open heart centers in the US. With the release, THOR meaningfully reduced expectations for revenue, gross margins, and EPS. THOR now expects revenue of \$455-\$470 (down 7-10%) versus its prior \$520-\$535 MM (up 3-6%) expectation given weaker YTD results, lower expectations for market growth. We were surprised by the confluence of factors that led to the weakness including THOR's comments on referrals/market growth, lack of growth in Open Heart Centers, and a shift by EU large volume centers to choose implants based primarily on size.
	While THOR would not comment on recovery in the 3Q, it noted traditional seasonal weakness and a number of factors in 2015 that could help performance (HMIII US enrolment, HTWR DT enrollment ending, PHP and HMIII approval in the EU) but would not give guidance as to growth or share expectations. Despite these efforts, we believe the soft factors will be slow to turn the ship on market growth and share, and we now model revenue declines through the 1H15 with our overall revenue growth expectation in 2015 relatively flat. In our view, THOR's PHP and HMIII approvals in the EU in late 2015 should help the company and the market return to higher growth in 2016+. Given this sea change we are lowering our numbers and price target meaningfully. Our 2014 revenue goes to \$470 MM from \$528 MM and 2015 revenue goes to \$479 MM from \$576 MM with 2014 EPS to \$1.34 from \$1.76 and 2015 EPS to \$1.45 from \$2.02. We are lowering our PT to \$30 based on ~3.3x our new 2015 revenue estimate; our prior target of \$43 was based on ~4x our prior 2015 revenue estimate. While there was a perfect storm of negative factors that we expect to impact growth for the next few quarters, we continue to view long-term market potential and growth as significant.
	BTIG downgraded its rating for the Company to Neutral following a "disappointing quarter" and "long term share losses" that could "take many quarters" to turn around: ²⁷⁴

²⁷³ Barclays, "Rebasing Expectations," August 7, 2014.

 $^{^{274}\} BTIG,\ "THOR\ Drops\ a\ Bomb\ with\ Large\ Miss\ and\ Chopped\ Guidance;\ Gives\ Dire\ Outlook\ on\ LVAD\ Market,"\ August\ 7,\ 2014.$

Impact Date	Event
	We cannot recall a more disappointing quarter for THOR and believe market share loss is as much to blame as a weak market. We downgrade THOR to NEUTRAL.
	Where have the HMII patients gone? We are stunned by THOR's results and feel the drastic reduction in guidance point to deeper problems than physician hesitation around thrombosis. Just about everything that could go wrong in a quarter went wrong. We do not like downgrading a stock post miss but we see no quick fix. While Thoratec did not lose the share we thought they would lose in 2013 it seems to be happening now, 6-9 months later than anticipated. Virtually anything that went wrong did including thrombosis worries, lost reps OUS, small players creating a Japanese launch where no more 2014 sales are expected, and open heart centers running into problems clearing patients with transplant centers. None of these seem easy fixes. We expect expenses ramp as THOR likely needs to add a lot of reps to compete better.
	We estimate the LVAD market was about flat this quarter. THOR placed 670 US pumps and 193 OUS. HTWR placed 338 and 336. THOR estimates the LVAD market will grow in the single digits in 2014 and that unit volume in 2H will be similar to 1H. We model a reduction in LVAD market growth coming from THOR, and increase our HTWR growth rates.
	We no longer think THOR can cut share losses in 2014. While the European sales force revision may be partially to blame for this quarter's miss, we think the coming expansion will take some time to kick in. Japan is no longer going to provide relief, as THOR expects no Japanese sales for the rest of the year. Meanwhile, the company's efforts to refocus in both the US and OUS will add up to higher near term expenses. The lone bright spot is the faster enrollment in the HM3 CE Mark trial.
	Based on our revised estimates and shaken confidence in THOR's ability to win back market share near term, we downgrade THOR to a NEUTRAL rating. The market tends to be lumpy and worries us less than what may be becoming long term share losses. Realistically, we believe hiring many reps or getting HMIII launched in Europe are the two options to turn things around for THOR but both will take many quarters.
	Canaccord Genuity lowered the Company's stock price target to \$28 from \$39 after "woeful" quarterly results and "shockingly reduced" revenue guidance: 275
	Our primary call out of THOR print is to buy HeartWare (HTWR: NASDAQ: \$83.43 BUY). THOR's revised (shockingly reduced) revenue guidance (-7-10% Y/Y) implies (to us) one of three H2 possibilities: a)

²⁷⁵ Canaccord Genuity, "Woeful Q2; Prefer HTWR," August 7, 2014.

Impact Date	Event
	HTWR will gain more share worldwide than we model, b) THOR's guide is too conservative, or c) both.
	Based on our due diligence, coupled with discussions with HTWR management last night on worldwide
	market dynamics (delineated on its call), we deduce "c" is most likely.
	Our Q2 US VAD survey (published 7/29) predicted the slowdown in the US market (flat Q/Q), contradicting Street estimates of +6-8% Q/Q; so we are not surprised by THOR's weak Q2. We are surprised by the guide, which does not jibe with our research. To wit, THOR is guiding to mid-single digit US VAD market growth in 2014 vs. our Q2 survey predicting +12% Y/Y, including a big bounce in Q3 volumes (+20% Q/Q estimate). While patient referrals have slowed, we think it is for transient reasons (NEJM article). By contrast, reimbursement is strong, procedure profitability is outstanding, new center development continues and resource allocation (VAD staff) is trending higher, all of which keeps us bullish on the long-term fundamentals of the VAD market.
	THOR's "guide" could weigh on HTWR near term, but sentiment may overshoot. HTWR remains one of our top picks in med-tech, and we recommend long term investors buy the stock. As for THOR, we remain cautious near-term, but based on where the stock seems poised to open (low \$20s, implying 2x 2015E EV/sales/10.5x EV/EBITDA), we maintain a BUY rating, albeit we continue to be less constructive on this stock relative to our top picks in the space. Lower our year-end target to \$28.
	Credit Suisse lowered its price target for the Company to \$27 from \$40 and lowered its rating to Neutral. The analyst recommended avoiding the Company's stock "given the prospect of continued share pressure on THOR prior to the resolution of HMII's true thrombus rate and given the surgical appeal of HVAD": ²⁷⁶
	Downgrading to Neutral (from Outperform) & Lowering Target to \$27 (from \$40); 2Q14 Miss; FY Guidance Lowered Meaningfully: THOR reported 2Q14 revs/EPS of \$118M (-13% CC)/\$0.43 vs. our \$130M (-1.5% CC)/\$0.43 estimates & consensus of \$128M (-1.7% reported)/\$0.43 with higher gross margin, lower R&D spend & lower share count/tax vs. our model driving in line EPS despite the sizeable revenue miss. 2Q US/OUS HMII units were 670 (-10% YoY)/193 (-30% YoY) vs. our 727 (-3% YoY)/259 (-6% YoY) estimates & consensus of 742 (-1% YoY)/251 (-9% YoY). THOR lowered FY14 sales/EPS guidance to \$455-\$470M/\$1.25-\$1.35 from \$520-535M/\$1.72-1.82. We're lowering our FY14 sales/EPS estimates to \$466M (-7.6% CC)/\$1.35 from \$520M (3.2% CC)/\$1.73 on the soft 2Q results & lower market share and market growth forecasts. Our estimates compare to consensus sales/EPS of \$523M/\$1.75. Our \$27 DCF-based PT
	assumes 1.5% terminal growth, 9.2% WACC & implies 13.8x 2016 PE multiple.

²⁷⁶ Credit Suisse, "Downgrading to Neutral," August 7, 2014.

Impact Date	Event
	2Q LVAD Market Very Soft & THOR Continuing to Lose Share: Based on THOR/HTWR's results, we estimate US/OUS ex-Japan LVAD volume growth slowed to 4%/-8% in 2Q14 vs. 12%/10% in 1Q14 (exstocking, including PVAD/IVAD). In the US, we estimate THOR lost ~300bps of sequential share (exstocking incl. PVAD/IVAD) while OUS ex-Japan, we estimate THOR lost 100bps of sequential share (exstocking, with PVAD/IVAD). THOR attributed market softness to the continued fallout from NEJM-related thrombus concerns & slowing growth in open heart centers without transplant centers while share losses were attributed to interest in thoracotomy with the HVAD & poor OUS execution.
	Thoughts about the Stock: We remain optimistic about the long-term outlook for LVAD therapy, but given the prospect of continued share pressure on THOR prior to the resolution of HMII's true thrombus rate and given the surgical appeal of HVAD we are moving to the sidelines. Key bases for our becoming more constructive on THOR is their demonstration that early thrombus can be brought down to ~5% and that past 6 months that the rates are quite low, that DT open heart center growth can be rejuvenated, and most importantly, that the HM III works well and/or that MVAD experiences excessive delay. All told, our impression at ISHLT was that despite superb mortality benefits, LVAD patients experience relatively high re-hospitalization rates which are likely weighing on market growth now that the implanted cohort has grown. More subdued market growth in the near term, and the resultant perception that large cardio-players are unlikely to imminently enter the space through acquisition, may also constrain THOR multiple expansion in the near term.
	Leerink Partners lowered its price target for the Company to \$35 from \$40 following "disappointing 2Q14 results." The analyst wrote that "THOR shares are likely to trade sharply lower today as these 2Q14 results could spook investors": ²⁷⁷
	Bottom Line: Last night, THOR delivered disappointing 2Q14 results with sales of \$118.1M (-10%) dramatically underperforming both Wall Street and management expectations. The sales miss was multifaceted, driven by: (1) Increasing thrombus concerns with THOR's HeartMate II tied to the late 2013 NEJM article; (2) A more dramatic shift toward thoracotomy particularly in Europe; (3) Personnel turnover in Europe initiated by THOR; (4) Increasing competition in Japan with Jarvik launching in 1H14; (5) Slowing volume growth at the smaller open heart centers. HeartMate II thrombus concerns made up the majority of the headwinds in 2Q, and we view these as more transitory in nature albeit also more protracted. And competitive dynamics should ease a bit as THOR continues to progress its pipeline with HeartMate III currently enrolling in a CE Mark trial potentially driving a meaningful improvement in the 2015 outlook vs. 2014. Our PT goes to \$35 from \$40.

²⁷⁷ Leerink Partners LLC, "THORATEC CORP., 2Q14: Long-Term Market Opportunity Intact Despite a Disappointing Quarter," August 7, 2014.

Impact Date	Event
	Reiterate OP, Though Shares Likely To Be Range-bound in the Near Term. THOR shares are likely to trade sharply lower today as these 2Q14 results could spook investors as they relate to: (1) Market growth; and (2) THOR's ability to regain and retain market share with the current-generation product. And the shares will likely remain range-bound in the near term as THOR works through these recent headwinds. But the shares could start to move higher as we head into 2015 with easing headwinds, building clinical evidence, & ongoing pipeline progress all of which should drive an improving outlook to high-single-digit sales growth.
	LVAD Market Growth Less Bad Than it Seems. After now weaker global market growth in 1H14, THOR is guiding to high-single-digit LVAD market growth for the year prompting us to lower our global market growth outlook to mid-single-digits from mid-teens. Based on both THOR's and HTWR's (OP) 2Q14 results, it appears the global LVAD market was basically flat in 2Q14. But excluding: (1) The impact of Japan a brand new market only just now being developed; (2) Distributor volatility in non-core EU markets; and (3) Slower growth at lower-volume U.S. open heart centers all of which disproportionately impacted THOR we estimate the global LVAD market grew at least low-to-mid single digits. This to us implies that the longer-term market opportunity particularly as safer, next-gen devices come to market remains intact.
	Longer Market Recovery Drives Lower Outlook. Our 2014 sales estimate moves meaningfully lower to \$465.4M (-7% y/y) from \$531.5M previously. And for now while we do assume a market recovery in 2015 we're inclined to remain conservative on the extent of the recovery until we see some of the incremental clinical data in the coming months and continued pipeline progress. For 2015, we now expect THOR to deliver \$499.6M (+7% y/y) in sales vs. \$592.2M previously.
	Oppenheimer & Co. lowered it price target for the Company to \$35 from \$41, "as thrombosis concerns and the NCD continued to weigh." The analyst added that "the stock will likely get hit on the reduced guide": 278 Sales of \$118.1M in 2Q14 were below our \$125.8M/Street's \$128.3M ests as thrombosis concerns and the NCD continued to weigh. EPS was slightly ahead of our estimate/in line with the Street at \$0.43 on better gross margin. Sales guidance was lowered \$65M to \$455-470M. Guidance assumes the issues persist though
	[sic] 2H, though initiatives are underway to improve both (most prominently a recent update to the FDA label with a balanced thrombosis discussion and highlighting improved HMII outcomes since original DT approval). While the stock will likely get hit on the reduced guide, we have seen significant lumpiness in this market

²⁷⁸ Oppenheimer & Co., "Thoratec Corp., Thrombosis Concerns Drive Sales Miss," August 7, 2014.

Impact Date	Event
	before and focus should shift to HMIII with the CE Mark trial underway. PT to \$35 from \$41 on reduced estimates.
	KEY POINTS 2Q sales. US/int'l HMII units were -41/-35 versus our estimates. THOR's share was down 3pts sequentially versus our 1.5pt estimate as thrombosis concerns weighed. International share was down another point sequentially to 36.5% on a combination of thrombosis, sales force churn and an accelerating surgical trend in major European centers toward thoracotomy (done with HTWR's HVAD).
	WW Market LVAD units (ex-stocking/Japan) were +2% (vs our +8%E). THOR guidance assumes '14 market growth 7-8% (2H units = 1H). Market grew 9-10% ytd. Ex 3 shows historical market lumpiness, further reflected in Ex 2; 1H units were in line with our ests going into '14 with 1Q up the same as 2Q down.
	NEJM. THOR believes some US centers still hold back somewhat on driving referrals and are more patient-selective as they gain comfort on thrombosis. To counter this, THOR now has an updated HMII label with balanced thrombosis data and is launching a new trial (PREVENT) to demonstrate best practices.
	HMIII Trial. CE Mark trial commenced in late June; 12 patients are now enrolled with enrollment tracking faster than expected and projected to complete by the end of '14 (approval 4Q15E). THOR also received conditional approval from the FDA to begin the initial safety phase of the US HMIII study.
	Model. '14E sales go from \$527M to \$466M; EPS from \$1.71 to \$1.31. Our '15E sales go from \$580M to \$517M (+11%) and EPS from \$1.97 to \$1.57 (+20%). For '15, comps ease on the HTWR DT supplemental and HMIII CE Mark trials. THOR also plans to enroll the US HMIII trial.
	Piper Jaffray wrote it expected sales to be down in the quarter but the Company was still short of its expectations. The analyst commented that "global market growth has flattened and THOR market share has decreased": ²⁷⁹
	Thoratec reported revenues of \$118.1M (down 10% y/y) vs. our estimate of \$121.5M and consensus of \$128.5M. We anticipated sales to be down sequentially given the 40 unit (~\$4.2M) Japan stocking order in Q1 pulled from Q2, though we still underestimated the quarter. Both US (down 10% y/y) and OUS (down 30%) HMII unit sales were light (US: 670 vs consensus of 742 and PJC of 719; OUS: 193 vs consensus of 251 and PJC of 225), with the miss largely due to a lower than expected market growth rate and share loss to HVAD.

²⁷⁹ Piper Jaffray, "Thoratec Corp. (THOR), First Look at 2Q14 Results," August 7, 2014.

Impact Date	Event
	Heartmate sales were \$102.0M (consensus: \$113.5M), CentriMag \$13.1M (consensus: \$13.3M), and
	PVAD/IVAD \$2.5M (consensus: \$2.1M). EPS of \$0.43 was equal to consensus and above our estimate of
	\$0.37. The company lowered its sales guidance from \$520M-\$535M to \$455M-\$470 and its EPS guidance
	from \$1.72-\$1.82 to \$1.25-\$1.35 given its reduced expectations for global VAD market growth.
	The company initially assumed double-digit market growth in their 2014 guidance and recapture of THOR
	market share losses earlier this year, however global market growth has flattened and THOR market share has
	decreased. OUS sales were negatively affected by reduced patient demand in Europe and the expected
	reduction of sales in Japan from distributor patterns and slowdown of rapid initial growth following the
	commercial launch in 2013.
	We believe HMIII (now in its CE Mark study) continues to be the key catalyst for THOR to challenge HTWR
	in Europe and drive market share. The trial (to enroll 50 patients) is still expected to have full enrollment by
	the end of 2014 and to receive CE Mark approval in late 2015; the US IDE study is expected to begin enrolling
	"in the near future" (ahead of "late CY14" previously). The Heartmate PHP CE Mark trial enrollment has also
	commenced and the company expects approval in 2015 as well. Reiterate OW.
	J.P. Morgan lowered its price target for the Company to \$30 from \$35 following "disappointing" results and reduced guidance that was expected to be "the main focus for investors." The analyst expected the Company's stock to trade lower in response: ²⁸⁰
	Thoratec reported weak 2Q results Wednesday after the close, with sales of \$118.1M (-10%) coming in a full
	\$9.5M below Street consensus. On the bottom line, adjusted EPS of \$0.43 (-18%) were in-line with
	consensus, as strong gross margin and lower tax rate helped to offset the revenue shortfall. As disappointing
	as this performance was, however, the main focus for investors coming out of the call is likely to be the
	company's full year sales guidance, which management slashed by 12% at the midpoint of the range. CEO
	Gary Burbach cited a number of causes for this reduced outlook, ranging from overly aggressive market share
	assumptions heading into the year to lingering concerns about higher thrombosis rates with the HeartMate 2. Below we try to put some of these issues into context and walk through what they mean for both the VAD
	market overall and Thoratec and Heartware individually.
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	Thoratec's revised outlook reflects both ongoing share losses and market headwinds. For the year, the
	company is now guiding to total revenues of \$455- 470M, down from its prior forecast of \$520-535M and

²⁸⁰ J.P. Morgan, "Thoratec Corp., Market Headwinds & Competitive Pressures Combine to Take a Bite out of Guidance; Maintain Neutral," August 7, 2014.

Impact Date	Event
	implying a decline of 7-10% YOY. Management listed a number of issues driving this revised outlook, including: 1) lingering concerns about elevated thrombosis rates with the HeartMate 2, which are dampening
	referral volumes and causing centers to defer treatment of some patients who have been referred; 2) the
	growing popularity of less invasive surgical (LIS) techniques in the VAD market, which is driving share gains
	for Heartware's HVAD both in the US and Europe; 3) slower volume growth at US open heart centers in the wake of last year's CMS NCD; and 4) stagnant implant volumes in Japan, which combined with an inventory
	glut and new competition has turned that market from a potential growth driver into a laggard. The net of all
	these issues is that Thoratec now expects VAD market growth to slow to the mid single digits in the back half
	of the year. This would bring full year growth down to the high single digits vs. its prior guidance for low double digit gains.
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	Despite this dour outlook, we do not believe that the VAD market is broken. Rather, we see these issues as a
	series of transient market headwinds and company specific challenges coming together to create a perfect storm for Thoratec. While it will no doubt get lost in tomorrow's price action, investors should remember that
	Heartware reported a strong quarter just a few days ago. We had the chance to speak with HTWR
	management Wednesday night and our sense is that their view of their own business is unchanged from the positive outlook they provided last week.
	positive outlook they provided last week.
	Wells Fargo lowered its price target for the Company to a range of \$24-\$26 from \$30-\$31, as it "expect[ed] THOR to face
	continued challenges as it addresses concerns about adverse events with its HeartMate II pump and increasing competition from HTWR's smaller HVAD": ²⁸¹
	Summary. THOR reported Q2 2014 sales of \$118.1MM which was \$10.2MM below consensus and \$5.7MM
	below our estimate. The miss versus our estimate was driven by weaker-than-expected global market growth
	from continued concerns about pump thrombus with THOR's HeartMate 2 and competition from growing
	interest in less invasive thoracotomy techniques with HTWR's HVAD in Europe. We estimate the worldwide LVAD market grew about 2% in Q2 2014 (excluding stocking), down from about 19% in Q1 2014, and that
	THOR lost approximately 140 bps of share sequentially to HTWR globally in Q2. Moving forward in 2014,
	THOR now expects mid- to high-single-digit market growth in the back half of 2014 led by outside the US
	(OUS) markets, with implant volumes flat compared with H1. THOR lowered 2014 sales guidance by \$65MM at the low and high end of the range to \$455-470MM (-10% to -7%) and lowered 2014 adjusted EPS
	guidance by \$0.47 at the low and high end of the range to \$1.25-1.35 (-31% to -25%). We lower our 2014
	sales estimates by \$42.5MM to \$466.9MM and lower our 2014 EPS estimate by \$0.31 to \$1.34. We lower our

²⁸¹ Wells Fargo Securities, "THOR: Q2 Miss And Guidance Lowered--Lowering Valuation Range," August 7, 2014.

Impact Date	Event
	2015 sales estimate by \$48MM to \$527.0MM and lower EPS by \$0.25 to \$1.62. We are also lowering our
	valuation range to \$24-\$26 from \$30-\$31.
	Global Market Growth Stagnates on Thrombosis Concerns. We estimate the worldwide LVAD market grew
	about 2% in Q2 2014 (excluding stocking), down from about 19% in Q1 2014. The US market grew about 3% ex-stocking in Q2 which represents a sequentially deceleration from 14% in Q1 2014. We estimate the OUS
	market excluding stocking in Japan was flat in Q2 which represents a sequential deceleration from 28% growth
	in Q1 2014. THOR indicated the LVAD market was soft in Q2 due to the continued negative impact from thrombosis data published in 2013. In the months ahead, THOR expects to show stabilization in thrombus
	trends with HeartMate 2 through: 1) INTERMACS registry annual data later this year; 2) the European arm of
	the TRACE study on reduced anti-coagulation therapy with HM2 to be presented in October at EACTS; and 3)
	ROADMAP data comparing VAD therapy to optimal medical management in early 2015. Management also noted a potential benefit from the FDA recently approving the inclusion of HM2 DT post-approval study data
	and summary clinical information on thrombus in future product labeling. Lastly, THOR expects to initiate the
	PREVENT clinical trial (n=300) in the coming months to generate clinical data on minimizing thrombosis through best practices for pump implantation and patient management. Moving ahead in 2014, THOR now
	expects mid- to high-single-digit global LVAD market growth led by OUS markets with H2 volumes flat with
	H1 2014. We estimate global LVAD market growth of 8% in 2014.
	Valuation Range: \$24.00 to \$26.00 from \$30.00 to \$31.00
	Our 12-month valuation range for Thoratec assumes an EV/Sales multiple of 2.3x our 2015E sales. Risks to our thesis include worse-than-expected HMII uptake and competitors gaining more share than we model.
	our thesis include worse-than-expected rivin uptake and competitors gaining more share than we moder.
	Investment Thesis: We expect THOR to face continued challenges as it addresses concerns about adverse
	events with its HeartMate II pump and increasing competition from HTWR's smaller HVAD.
	Barrington Research reiterated its Outperform rating for the Company, but noted that "THOR's stock is down to a price that
	represents a valuation level indicative of a company that just cut its earnings 40% with a questionable growth outlook for the next year": 282
	THOR and HTWR are turning into a more interesting business case example regarding the risks involved with
	investing in high growth innovative companies where small differences in features, risks and benefits of a technology can lead to rather large differences in share. Being the leader is great on the way up, but when a
	20

²⁸² Barrington Research, "Major Miss; Guidance Reduced by 15%; Trading Mid-Teens Ex-cash," August 7, 2014.

Impact Date	Event
	new competitor comes to town with a better product, or at least a perceived better product, the deleveraging
	can be costly to the bottom line. THOR's stock is down to a price that represents a valuation level indicative
	of a company that just cut its earnings 40% with a questionable growth outlook for the next year. We
	understand why investors would like to move to the sidelines, however, we don't believe it's the right move.
	We believe HMIII is going to change that dynamic again. Are the earnings inherently less valuable because
	there will always be this unknown of a competitor kicking ones share position down close to zero? We don't
	see it and the reason is that as the devices improve and begin to demonstrate 90% six month survival, the
	differences will be less significant. In our opinion, the likelihood that there are massive share shifts in the
	2018+ time frame is not as high as it is right now. Right now, HVAD is taking massive share as most of the European surgeons are doing less invasive intercostal approaches opposed to a sternotomy and, because
	THOR's device is meaningfully bigger, it is harder to do the less invasive approach creating a share shift
	towards HTWR. In early July, THOR announced the acquisition of Apica, which has designed a minimally
	invasive tool set for a less invasive delivery system for transapical access applicable to both valve and LVAD
	procedures.
	procedures.
	THOR reported Q2/14 revenue of \$118.1 million, down 10% versus revenue of \$130.5 million in Q2/13, and
	below our estimate and the Street consensus of \$128 million by (8.0%). The decrease in revenue was due to a
	decline in HeartMate II, partially offset by growth in the CentriMag and PVAD product lines. U.S revenue
	was down 5% to \$94.2 million. International revenue was \$23.9 million, versus \$31.7 million in Q2/13 due to
	strong declines in both the EU and Japan. HeartMate Q2/14 revenue was down 12% to \$102.0 million.
	During Q2/14, the company shipped total of 863 HeartMate pumps worldwide, down 16% versus Q2/13.
	HeartMate II unit volume declined 10% in the U.S. and 30% OUS.
	Manage 1 1 in FSV/14 1 in FSV/
	Management lowered its FY/14 revenue guidance to \$455-470 million. The company expects GAAP EPS to
	be \$0.80-0.90 and non-GAAP EPS to be \$1.25- 1.35. Gross margin is expected to be 69% on a GAAP basis and 70.5% on a non- GAAP basis due to reduced pump volume. The effective tax rate is expected to be 31%.
	We are reiterating our OUTPERFORM investment rating.
	We are renorating our oom the order investment rating.
	News stories attributed the decrease in the Company's stock price to its earnings release. ²⁸³
	me to the first of

²⁸³ The Wall Street Journal, "Thoratec Posts Profit Decline, Cuts Guidance; Thoratec Shares Down 26% After Hours," August 6, 2014, 5:28 PM; Dow Jones Institutional News, "Thoratec Slashes Guidance, Shares Plunge After Hours -- Market Talk," August 6, 2014, 5:20 PM; Theflyonthewall.com, "Thoratec down 19.7% after reporting Q2 miss, lowers FY14 guidance," August 6, 2014, 4:35 PM; RTT News, "Thoratec Profit Falls On Weak Sales, Cuts FY Guidance; Stock Down 12%," August 6, 2014; Benzinga.com, "Stocks Hitting 52-Week Lows," August 7, 2014, 10:30 AM; Associated Press Newswires, "SunEdison and Stratasys are big market movers," August 7, 2014, 4:33 PM; Reuters, "BUZZ-U.S.

Impact Date	Event
	According to Bloomberg, following the disclosures on August 6, 2014, the average of analysts' price targets for the Company decreased to \$32.25 from \$41.25, or -21.8%, and out of 16 analysts with investment ratings for the Company, four downgraded their ratings. (<i>See</i> Exhibit 5C.) ²⁸⁴
	Remark: Given that: 1) the Company's quarterly revenues were well short of analysts' expectations, reportedly due to "near-term factors [] having a greater than expected negative impact on [the Company's] business; ²⁸⁵ 2) the Company "slashed" its guidance for 2014; ²⁸⁶ and 3) analysts failed to see a quick fix to the Company's declining market share and growth, the statistically significant negative Company-specific return on August 7, 2014 is consistent with that expected in an efficient market.

Stocks on the Move-Thoratec, Bruker, Stratasys, Roundy's," August 7, 2014, 9:49 AM; *Seeking Alpha*, "Thoratec down premarket," August 7, 2014, 8:15 AM; *Bloomberg*, "THORATEC STREET WRAP: Mkt Growth Slows, L-T Outlook Still Intact," August 7, 2014, 8:46 AM.

²⁸⁴ Figures exclude BTIG LLC for which the pre-event price target is unavailable from Bloomberg.

²⁸⁵ PR Newswire, "Thoratec(R) Reports Second Quarter 2014 Results," August 6, 2014, 4:02 PM.

²⁸⁶ See, e.g., William Blair & Company, "Perfect Storm of Problems Results in Slashed Guidance; Fixes to These Issues Appear Protracted," August 6, 2014; J.P. Morgan, "Thoratec Corp., Market Headwinds & Competitive Pressures Combine to Take a Bite out of Guidance; Maintain Neutral," August 7, 2014.

Thoratec Corp.

Market Capitalization

Source: Bloomberg

Date	Thoratec's Market Capitalization	Median Market Capitalization ¹		Thoratec's Market Capitalization Mean Market Capitalization Mean Market Capitalization		Thoratec's Percentile ²		Number of Companies	
	ouprounduron	NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ
5/11/2011	\$1,899,910,900	\$2,231,038,592	\$232,724,576	\$8,857,362,056	\$1,737,370,449	45.30%	87.70%	1,458	2,454
12/31/2012	\$2,204,558,900	\$2,114,174,208	\$225,722,688	\$8,747,736,355	\$2,095,695,923	52.00%	88.80%	1,427	2,269
12/31/2013	\$2,085,121,600	\$2,923,821,824	\$325,490,336	\$11,419,237,240	\$2,805,725,088	41.30%	84.40%	1,437	2,293
8/6/2014	\$1,849,976,000	\$2,755,189,504	\$297,072,048	\$11,215,355,264	\$2,987,790,524	39.30%	83.30%	1,493	2,378

Mandh	T	'horatec's Stock	
Month	Minimum	Maximum	Average
May-11	\$1,893,045,800	\$2,042,361,300	\$1,961,451,414
Jun-11	\$1,707,688,600	\$1,931,375,800	\$1,801,277,359
Jul-11	\$1,923,938,700	\$2,096,137,700	\$2,004,717,775
Aug-11	\$1,801,806,700	\$2,046,747,200	\$1,907,924,517
Sep-11	\$1,817,936,900	\$1,995,369,400	\$1,913,153,614
Oct-11	\$1,924,276,900	\$2,232,543,600	\$2,119,745,762
Nov-11	\$1,687,569,600	\$2,084,384,400	\$1,775,532,248
Dec-11	\$1,773,266,500	\$2,012,378,800	\$1,881,878,690
Jan-12	\$1,737,909,100	\$1,932,075,400	\$1,814,646,725
Feb-12	\$1,817,013,900	\$2,140,624,500	\$2,001,687,965
Mar-12	\$1,950,416,700	\$2,033,972,600	\$1,987,520,209
Apr-12	\$1,859,849,100	\$2,058,513,500	\$1,951,512,280
May-12	\$1,780,059,900	\$2,015,859,100	\$1,887,881,818
Jun-12	\$1,745,444,400	\$1,970,152,000	\$1,870,300,552
Jul-12	\$1,946,097,100	\$2,114,481,200	\$2,015,886,962
Aug-12	\$1,834,680,000	\$1,994,793,600	\$1,900,131,709
Sep-12	\$1,972,325,100	\$2,092,911,700	\$2,033,702,000
Oct-12	\$2,012,324,600	\$2,150,557,900	\$2,063,836,471
Nov-12	\$2,012,423,900	\$2,234,524,900	\$2,114,577,962
Dec-12	\$2,172,242,600	\$2,307,383,500	\$2,226,117,920
Jan-13	\$2,143,451,700	\$2,239,813,100	\$2,171,039,500
Feb-13	\$2,028,858,700	\$2,170,479,900	\$2,113,422,526
Mar-13	\$2,032,315,000	\$2,160,083,600	\$2,065,423,665
Apr-13	\$2,049,596,600	\$2,168,263,500	\$2,103,509,932
May-13	\$1,775,522,400	\$2,103,745,600	\$1,881,496,736
Jun-13	\$1,725,071,700	\$1,864,957,900	\$1,787,963,095
Jul-13	\$1,760,043,100	\$1,887,316,600	\$1,840,019,023
Aug-13	\$2,046,857,400	\$2,150,408,300	\$2,079,687,727

Thoratec Corp.

Market Capitalization

Source: Bloomberg

Date	Thoratec's Market Capitalization	Median Market Capitalization ¹		Thoratec's Market Median Market Capitalization Mean Market Capitalization Mean Market Capitalization		Thoratec's Percentile ²		Number of Companies	
	омриминий и	NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ	NYSE	NASDAQ
5/11/2011	\$1,899,910,900	\$2,231,038,592	\$232,724,576	\$8,857,362,056	\$1,737,370,449	45.30%	87.70%	1,458	2,454
12/31/2012	\$2,204,558,900	\$2,114,174,208	\$225,722,688	\$8,747,736,355	\$2,095,695,923	52.00%	88.80%	1,427	2,269
12/31/2013	\$2,085,121,600	\$2,923,821,824	\$325,490,336	\$11,419,237,240	\$2,805,725,088	41.30%	84.40%	1,437	2,293
8/6/2014	\$1,849,976,000	\$2,755,189,504	\$297,072,048	\$11,215,355,264	\$2,987,790,524	39.30%	83.30%	1,493	2,378

Month	Thoratec's Stock					
Monu	Minimum	Maximum	Average			
Sep-13	\$2,033,050,600	\$2,165,365,700	\$2,113,762,800			
Oct-13	\$2,150,350,800	\$2,461,696,800	\$2,240,690,387			
Nov-13	\$2,242,930,000	\$2,466,824,200	\$2,383,162,950			
Dec-13	\$2,042,393,700	\$2,267,427,300	\$2,112,223,276			
Jan-14	\$1,958,077,300	\$2,202,480,900	\$2,064,286,652			
Feb-14	\$1,925,604,100	\$2,114,424,900	\$2,021,844,032			
Mar-14	\$1,941,251,000	\$2,113,857,100	\$2,028,770,757			
Apr-14	\$1,833,966,100	\$2,051,968,800	\$1,922,883,600			
May-14	\$1,754,552,000	\$1,913,060,500	\$1,828,611,524			
Jun-14	\$1,875,536,000	\$1,984,024,000	\$1,930,767,238			
Jul-14	\$1,779,544,000	\$2,018,104,000	\$1,885,966,545			
Aug-14	\$1,831,800,000	\$1,877,808,000	\$1,856,082,000			

¹⁾ Market capitalization of companies whose primary listing of common stock is on the NYSE or NASDAQ, excluding companies with no data available.

²⁾ This reflects the percentage of companies in the NYSE and NASDAQ with market capitalization smaller than Thoratec Corp. Companies without market capitalization data have been omitted from this analysis.

Thoratec Corp.

Public Float: Reported Shares Outstanding Minus Total Insider Holdings

Source: Bloomberg, Thomson Reuters Eikon

Reporting	Reported Shares	Total Insider	Float (Shares)	Float (Dollars)	Float (%)
Date	Outstanding	Holdings	Float (Shares)	Float (Dollars)	Float (70)
5/13/2011	57,209,000	318,380	56,890,620	\$1,920,058,425	99.4%
5/31/2011	57,209,000	318,380	56,890,620	\$1,978,086,857	99.4%
6/15/2011	57,209,000	318,380	56,890,620	\$1,698,185,007	99.4%
6/30/2011	57,209,000	279,601	56,929,399	\$1,868,422,875	99.5%
7/15/2011	57,209,000	279,601	56,929,399	\$1,993,667,553	99.5%
7/29/2011	57,209,000	279,601	56,929,399	\$1,917,951,452	99.5%
8/15/2011	59,742,000	279,601	59,462,399	\$1,899,823,648	99.5%
8/31/2011	59,742,000	279,601	59,462,399	\$2,037,181,790	99.5%
9/15/2011	59,742,000	279,601	59,462,399	\$1,870,687,073	99.5%
9/30/2011	59,742,000	242,401	59,499,599	\$1,942,066,911	99.6%
10/14/2011	59,742,000	242,401	59,499,599	\$2,209,220,111	99.6%
10/31/2011	59,742,000	242,401	59,499,599	\$2,172,330,359	99.6%
11/15/2011	59,928,000	242,401	59,685,599	\$1,803,101,946	99.6%
11/30/2011	59,928,000	242,401	59,685,599	\$1,815,635,922	99.6%
12/15/2011	59,928,000	242,401	59,685,599	\$1,816,829,634	99.6%
12/30/2011	59,928,000	207,010	59,720,990	\$2,004,236,424	99.7%
1/13/2012	59,928,000	207,010	59,720,990	\$1,785,060,391	99.7%
1/31/2012	59,928,000	207,010	59,720,990	\$1,757,588,736	99.7%
2/15/2012	59,928,000	207,010	59,720,990	\$2,109,345,367	99.7%
2/29/2012	58,431,000	207,010	58,223,990	\$2,008,727,655	99.6%
3/15/2012	58,431,000	207,010	58,223,990	\$2,026,777,092	99.6%
3/30/2012	58,431,000	192,769	58,238,231	\$1,963,210,767	99.7%
4/13/2012	58,431,000	192,769	58,238,231	\$1,887,501,067	99.7%
4/30/2012	58,431,000	192,769	58,238,231	\$2,027,272,821	99.7%
5/15/2012	58,670,000	192,769	58,477,231	\$1,878,288,660	99.7%
5/31/2012	58,670,000	192,769	58,477,231	\$1,774,199,189	99.7%
6/15/2012	58,670,000	192,769	58,477,231	\$1,865,423,669	99.7%
6/29/2012	58,670,000	171,910	58,498,090	\$1,964,365,862	99.7%
7/13/2012	58,670,000	171,910	58,498,090	\$2,001,219,659	99.7%
7/31/2012	58,670,000	171,910	58,498,090	\$2,007,069,468	99.7%
8/15/2012	58,823,000	171,910	58,651,090	\$1,837,538,650	99.7%
8/31/2012	58,823,000	171,910	58,651,090	\$1,987,685,440	99.7%
9/14/2012	58,823,000	171,910	58,651,090	\$2,009,386,343	99.7%
9/28/2012	58,823,000	160,651	58,662,349	\$2,029,717,275	99.7%

Thoratec Corp.

Public Float: Reported Shares Outstanding Minus Total Insider Holdings

Source: Bloomberg, Thomson Reuters Eikon

Reporting	Reported Shares	Total Insider	Flood (Chouse)	Floot (Dollows)	Floor (0/)
Date	Outstanding	Holdings	Float (Shares)	Float (Dollars)	Float (%)
10/15/2012	58,823,000	160,651	58,662,349	\$2,023,851,041	99.7%
10/31/2012	58,823,000	160,651	58,662,349	\$2,094,245,859	99.7%
11/15/2012	58,757,000	160,651	58,596,349	\$2,021,574,041	99.7%
11/30/2012	58,757,000	160,651	58,596,349	\$2,179,784,183	99.7%
12/14/2012	58,757,000	160,651	58,596,349	\$2,202,050,795	99.7%
12/31/2012	58,757,000	171,117	58,585,883	\$2,198,142,330	99.7%
1/15/2013	58,757,000	171,117	58,585,883	\$2,143,071,600	99.7%
1/31/2013	58,757,000	171,117	58,585,883	\$2,140,142,306	99.7%
2/15/2013	58,757,000	171,117	58,585,883	\$2,123,738,259	99.7%
2/28/2013	57,605,000	171,117	57,433,883	\$2,022,821,359	99.7%
3/15/2013	57,605,000	171,117	57,433,883	\$2,050,963,962	99.7%
3/28/2013	57,605,000	171,117	57,433,883	\$2,153,655,745	99.7%
4/15/2013	57,605,000	171,117	57,433,883	\$2,085,424,292	99.7%
4/30/2013	57,605,000	171,117	57,433,883	\$2,079,106,565	99.7%
5/15/2013	57,330,000	171,117	57,158,883	\$1,921,681,646	99.7%
5/31/2013	57,330,000	171,117	57,158,883	\$1,781,642,383	99.7%
6/14/2013	57,330,000	171,117	57,158,883	\$1,825,083,134	99.7%
6/28/2013	57,330,000	209,256	57,120,744	\$1,788,450,495	99.6%
7/15/2013	57,330,000	209,256	57,120,744	\$1,794,733,776	99.6%
7/31/2013	57,330,000	209,256	57,120,744	\$1,872,989,196	99.6%
8/15/2013	57,528,000	209,256	57,318,744	\$2,058,889,284	99.6%
8/30/2013	57,528,000	209,256	57,318,744	\$2,047,998,723	99.6%
9/13/2013	57,528,000	209,256	57,318,744	\$2,103,597,905	99.6%
9/30/2013	57,528,000	209,256	57,318,744	\$2,137,415,964	99.6%
10/15/2013	57,528,000	209,256	57,318,744	\$2,210,210,769	99.6%
10/31/2013	56,971,000	209,256	56,761,744	\$2,452,674,958	99.6%
11/15/2013	56,971,000	209,256	56,761,744	\$2,457,783,515	99.6%
11/29/2013	56,971,000	209,256	56,761,744	\$2,234,709,861	99.6%
12/13/2013	56,971,000	209,256	56,761,744	\$2,044,558,019	99.6%
12/31/2013	56,971,000	188,699	56,782,301	\$2,078,232,217	99.7%
1/15/2014	56,971,000	188,699	56,782,301	\$2,195,203,757	99.7%
1/31/2014	56,971,000	188,699	56,782,301	\$1,983,973,597	99.7%
2/14/2014	56,971,000	188,699	56,782,301	\$2,045,298,482	99.7%
2/28/2014	56,778,000	188,699	56,589,301	\$2,101,726,639	99.7%

Thoratec Corp.

Public Float: Reported Shares Outstanding Minus Total Insider Holdings

Source: Bloomberg, Thomson Reuters Eikon

Reporting	Reported Shares	Total Insider	Float (Shares)	Float (Dollars)	Float (%)
Date	Outstanding	Holdings		1 11 (1 11 11)	()
3/14/2014	56,778,000	188,699	56,589,301	\$1,934,788,201	99.7%
3/31/2014	56,778,000	284,039	56,493,961	\$2,023,048,743	99.5%
4/15/2014	56,902,000	284,039	56,617,961	\$1,906,892,926	99.5%
4/30/2014	56,902,000	284,039	56,617,961	\$1,855,936,762	99.5%
5/15/2014	56,800,000	284,039	56,515,961	\$1,762,732,824	99.5%
5/30/2014	56,800,000	284,039	56,515,961	\$1,871,808,628	99.5%
6/13/2014	56,800,000	284,039	56,515,961	\$1,891,024,055	99.5%
6/30/2014	56,800,000	327,545	56,472,455	\$1,968,629,781	99.4%
7/15/2014	56,800,000	327,545	56,472,455	\$1,879,403,302	99.4%
7/31/2014	56,800,000	327,545	56,472,455	\$1,835,354,788	99.4%
8/15/2014	56,300,000	327,545	55,972,455	\$1,328,786,082	99.4%
Average	58,064,821	216,332	57,848,489	\$1,985,405,621	99.6%

Thoratec Corp.

Autocorrelation Test

Sample Period: 5/11/2011 - 8/6/2014

Thoratec's	Autocorrelation
Autocorrelation Coefficient	0.031
Observations ²	815
t-Statistic	0.895
p-Value ³	0.371

Notes:

- 1) Daily stock returns are calculated using last transaction prices recorded on sequential trading days during the Class Period. (Source: Bloomberg)
- 2) The sample consists of only those days on which both a daily return and a lagged daily return (from the immediately preceding trading day) can be calculated.
- 3) A p -value greater than 0.050 indicates that the estimated autocorrelation coefficient is statistically insignicant.